

+SWISS DESIGN

elma



instruction manual

Envision CE20



IMPORTANT SAFETY INSTRUCTIONS

Your Elna EnVision model CE 20 sewing machine is designed and constructed for HOUSEHOLD use only. Read all instructions before using this sewing machine.

DANGER – To reduce the risk of electrical shock:

1. Your sewing machine should never be left unattended when plugged in. Always unplug the machine from the electrical outlet immediately after using and before cleaning.
2. Always unplug before replacing light bulb. Replace bulb with same type rated 13.2 Volts D.C. 3 watts.
3. Do not reach for the machine if it has fallen into water. Unplug immediately.
4. Do not place or store machine where it can fall or be pulled into a tub or sink. Do not place it in or drop it into water or other liquid.

WARNING – To reduce the risk of burns, fire, electrical shock or injury:

1. Do not allow the machine to be used as a toy. Supervision is necessary when this machine is used by or near children.
2. Use this machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as described in this manual.
3. Never operate this machine if it has a damaged cord or plug, is not working properly, has been dropped or damaged, or dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.

IMPORTANT

SAVE THESE INSTRUCTIONS

4. This machine is equipped with a special connection cord which, if damaged, must be replaced by an identical cord. This can be obtained from your dealer.
5. Never operate the machine with any air opening blocked. Keep ventilation openings of the sewing machine and foot control free from accumulation of lint, dust and fibers.
6. Never drop or insert any object into any opening.
7. Do not use outdoors.
8. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
9. To disconnect, turn machine off, then remove plug from outlet.
10. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
11. Keep fingers away from all moving parts. Special care should be used around the sewing machine needle.
12. Always use the proper needle plate. The wrong plate can cause the needle to break.
13. Do not use bent needles.
14. Do not pull or push fabric while stitching. This may deflect the needle causing it to break.
15. Switch the machine off when making any adjustment in the needle area, such as threading needle, changing needle, threading bobbins, changing presser foot, etc.
16. Always unplug the sewing machine from the electrical outlet when removing covers, lubricating or when making any other servicing adjustments mentioned in the instruction manual.

Be sure to keep machine away from static electricity, heat sources, humidity and direct sunlight. When using your sewing machine the first few times, place waste fabric under the presser foot and run the machine without thread for a few minutes. Wipe away excess oil.

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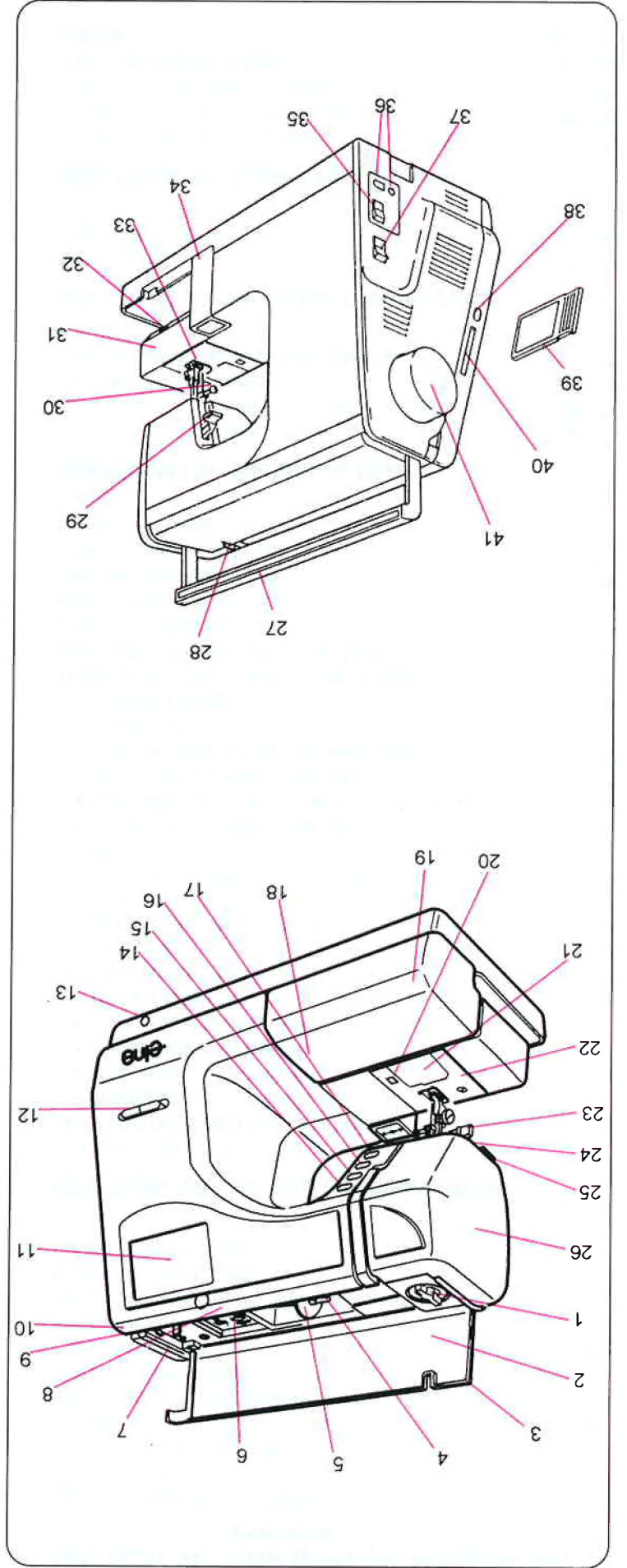
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SECTION I

Machine Parts and Functions

Part Names

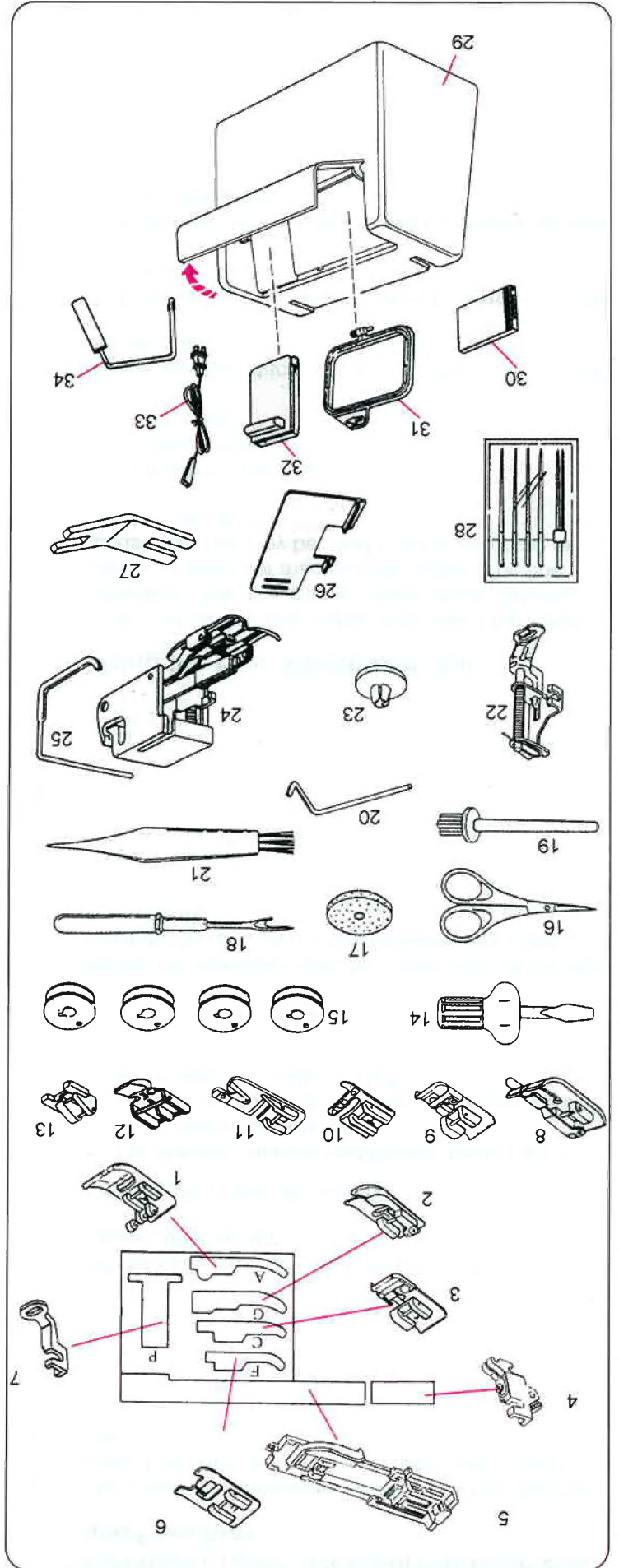
1. Foot Pressure Dial
2. Sewing Instruction Panel
3. Top Cover
4. Spool Pin
5. Spool Holder (Large)
6. Foot Compartment
7. Bobbin Thread Cutter
8. Computer Display Screen Brightness Control
9. Bobbin Winder Spindle
10. Bobbin Winder Stopper
11. Computer Display Screen
12. Speed Control Lever
13. Knee Lifter Hole
14. Up/Down Needle Key
15. Auto-Lock Key
16. Reverse Key
17. Start/Stop Key
18. Fine Adjustment Dial
19. Extension Table (Accessory Box)
20. Bobbin Cover Plate Release Button
21. Bobbin Cover Plate
22. Needle Plate
23. Needle Threader Lever
24. Buttonhole Lever
25. Thread Cutter/Holder
26. Face Plate
27. Carrying Handle
28. Thread Take-Up Lever
29. Presser Foot Lever
30. Needle Clamp Screw
31. Free Arm
32. Feed Dog Lever
33. Presser Foot
34. Carriage
35. Power Switch
36. Machine Sockets
37. Light Switch
38. Card Eject Button
39. EnVision Card™
40. EnVision Card Slot
41. Flywheel



Standard Accessories

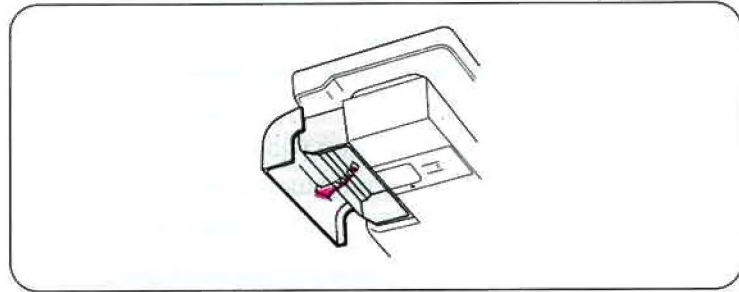
1. A: Metal Foot
2. G: Blind Hem Foot
3. C: Overlock Foot
4. Shank
5. R: Automatic Buttonhole Foot
6. F: Satin Stitch Foot
7. P: Embroidery Foot
8. O: Patchwork Foot (1/4" Foot)
9. M: Overcasting Foot
10. H: Multi-Cord Foot
11. D: Hemmer Foot
12. E: Zipper Foot
13. T: Button Sewing Foot
14. Screwdriver
15. Bobbins
16. Scissors
17. Spool Pin Felt
18. Seam Ripper
19. Additional Spool Pin
20. Quilting Bar
21. Lint Brush
22. P2: Darning Foot
23. Small Spool Holder
24. Walking Foot
25. Walking Foot Quilting Bar
26. Cloth Guide
27. Button Shank Plate
28. Set of Needles
29. Carrying Case
30. Envision Card
31. Embroidery Hoop
32. Foot Control
33. Power Supply Cord
34. * Knee Lifter

* Some countries do not include knee lifter feature.



Extension Table (Accessory Storage Box) and Free Arm

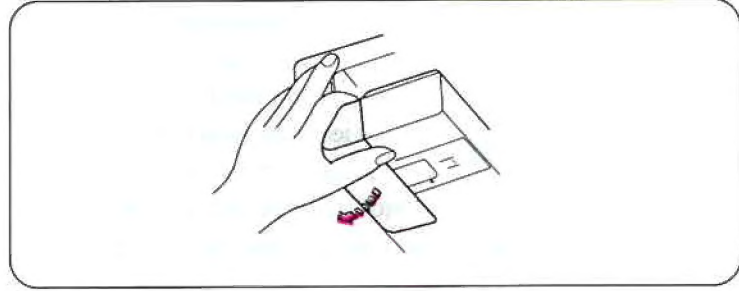
Many sewing accessories are stored in the extension table. Pull cover towards you to open the storage box.



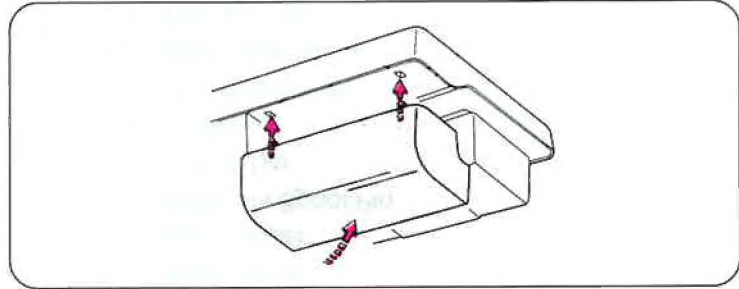
Lift the extension table up from the machine to expose the free arm.

Advantages of free arm sewing:

- For stitching sleeves, waistbands, pants legs or any circular garment area.
- For darning socks or mending knees, elbows or worn areas in children's clothing.



Attach the extension table for a large sewing surface. Position the tabs on the base grooves and push down gently.



Using the Fine Adjustment Dial

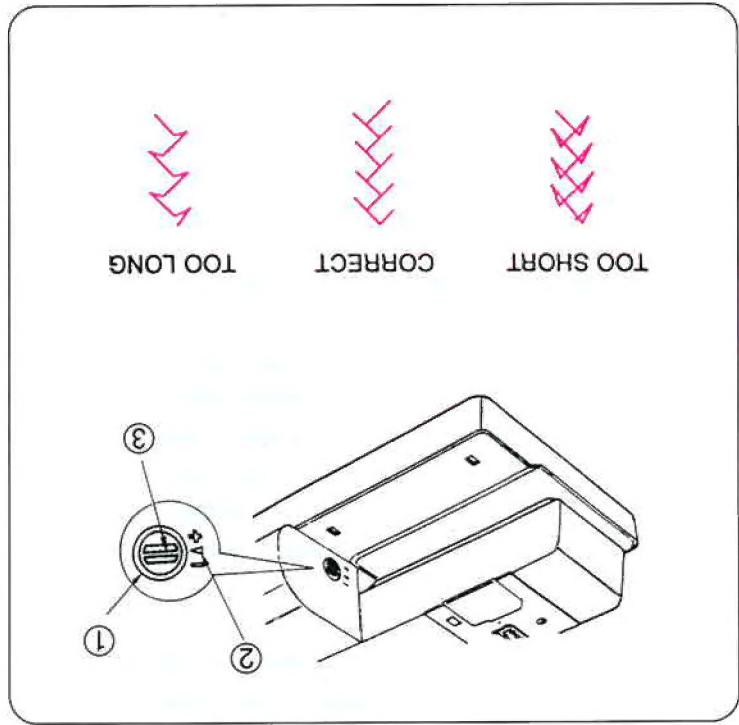
Choice of fabrics and threads may affect the stitch formation when sewing decorative stitch patterns, letters, numbers or manual buttonholes. The fine adjustment dial may be used to either lengthen or shorten the stitch.

- ① Fine adjustment dial
- ② Standard mark
- ③ Setting mark

To fine tune the stitch, use a screwdriver to move the setting mark.

If stitches are too short, correct by turning the dial in the direction of "+".

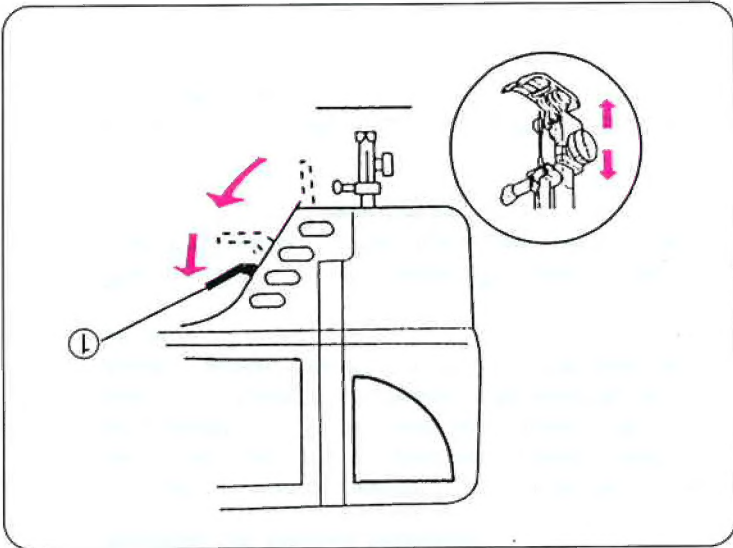
If stitches are too long, correct by turning the dial in the direction of "-".



Additional Presser Foot Clearance

You can raise the presser foot about 6.5 mm (1/4") higher than the normal up position for easy removal of the presser foot, to place heavy fabrics under the presser foot, or when moving the hoop under the presser foot. Pull up the presser foot lever beyond the normal up position.

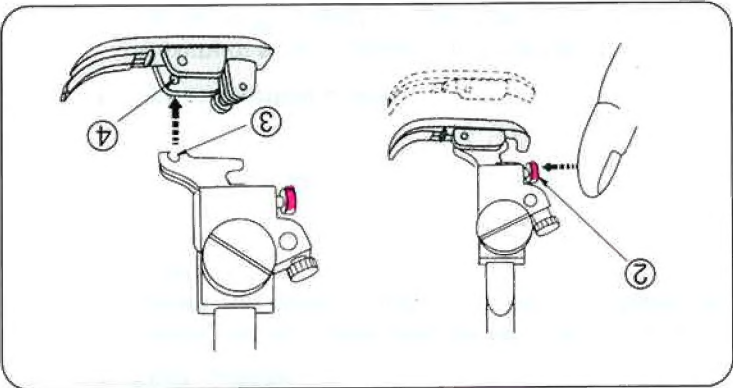
① Presser foot lever



Attaching and Removing Presser Feet

Press the red button on back of the shank. The presser foot will drop off. Place the selected presser foot so the pin on the foot lies just under the groove of the shank. Lower the presser bar to attach the foot.

- ② Red button
- ③ Groove
- ④ Pin



Attaching and Removing the Shank

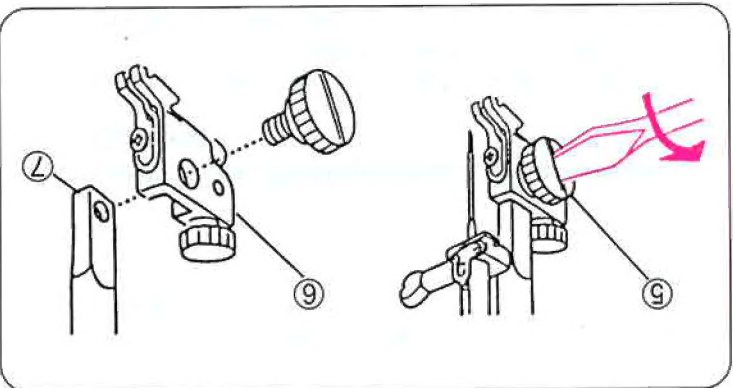
The shank is removed by turning the thumbscrew counterclockwise with the screwdriver.

⑤ Thumbscrew

When attaching, match the hole in the shank with the hole in the presser bar. Put thumbscrew in hole. Tighten thumbscrew by turning it clockwise.

⑥ Shank

⑦ Presser bar

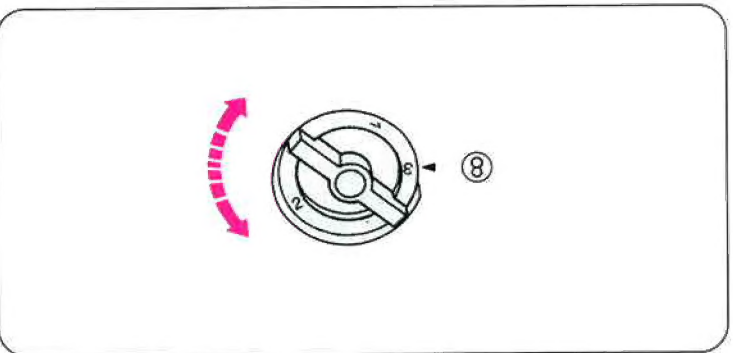


Foot Pressure Dial

The foot pressure dial should be set at "3" for ordinary sewing. Reduce the pressure to "2" for applique, cutwork, drawn work, basting and embroidery.

Velours and knits with a lot of stretch may require a "1" setting.

⑧ Setting mark

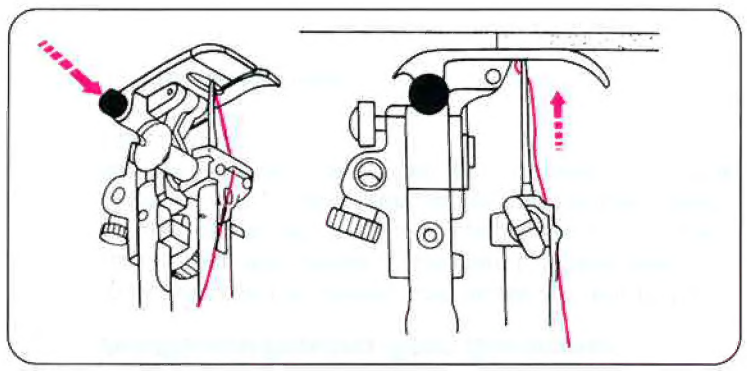


Sewing on Heavy Fabrics

The black button on presser foot A locks the foot in a horizontal position when pushed in before lowering the presser foot. This ensures even feeding at the beginning of seams and helps when sewing many layers of fabric while hemming jeans that have welt seams.

When the point of an increased thickness is reached, lower the needle and raise the presser foot. Press in the black button. Lower the foot and continue sewing.

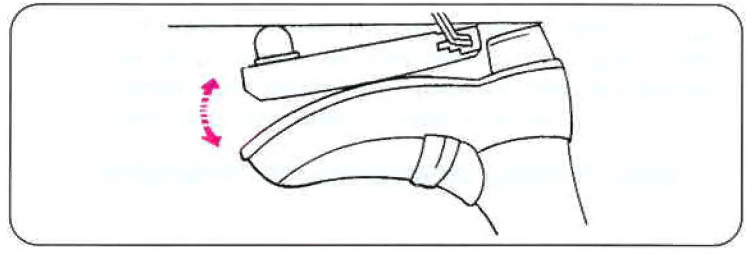
This button releases automatically after a few stitches have been sewn.



Controlling Sewing Speed

• Foot Control

Sewing speed varies with the foot control. The harder you press on the foot control, the faster the machine runs.

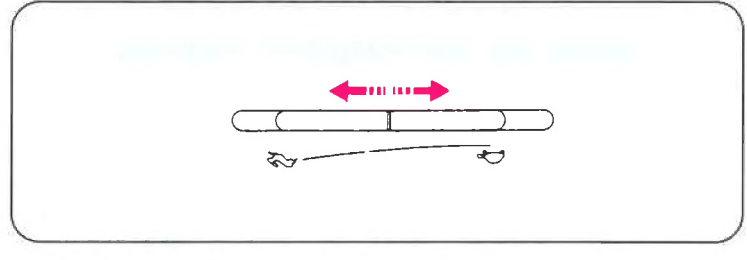


• Speed Control Lever

Maximum sewing speed can be preset by adjusting the speed control lever.

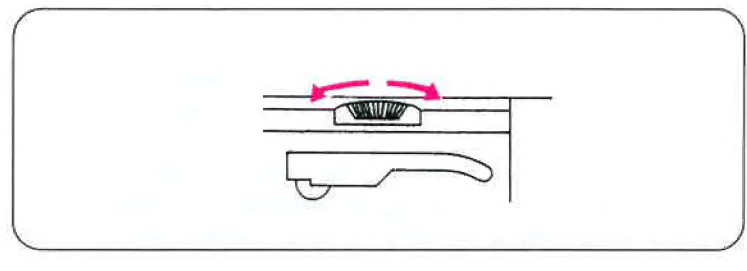
To increase sewing speed, slide the lever to the right.

To decrease sewing speed, slide the lever to the left.

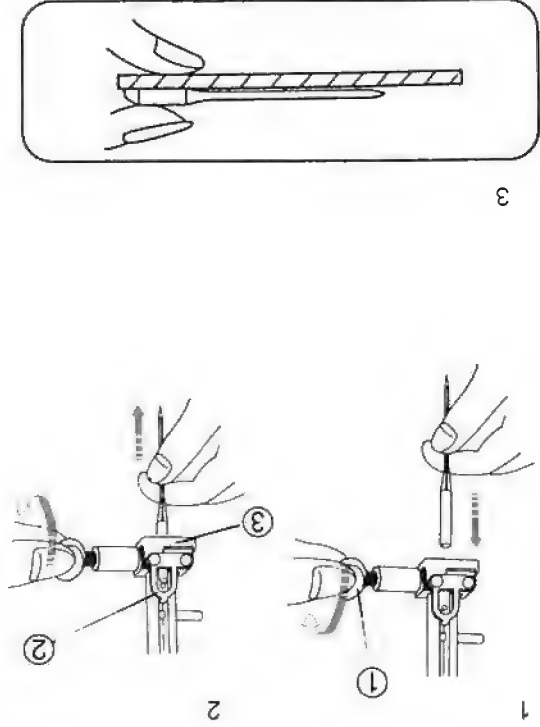


Computer Display Screen Brightness Control

Display screen lightens or darkens for visibility by turning the dial located under the top cover in front of the foot compartment.



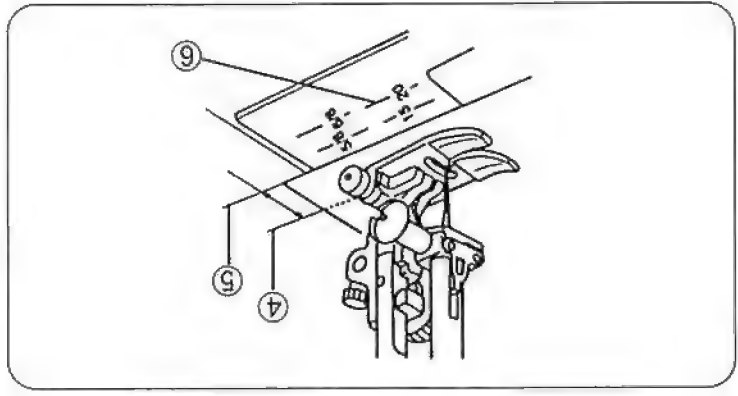
- ### Changing Needles
- 1 Raise the needle by pressing the up/down needle key. Lower the presser foot.
 - Turn off the power switch.
 - Loosen the needle clamp screw by turning it counterclockwise.
 - ① Needle clamp screw
 - 2 Remove the needle from the clamp. Insert the new needle into needle clamp with flat side to the back.
 - When inserting the needle into the clamp, push it up as far as it will go and tighten the clamp screw firmly.
 - ② Needle insertion view hole
 - ③ Needle clamp
 - 3 To determine if the needle is defective, place the flat side of the needle on something flat (a needle plate, glass, etc.).
- The gap between the needle and the flat surface should be consistent. Never use a bent or blunt needle. It may cause skipped stitches or thread breakage. Defective needles can ruin the fabric.
- Always purchase good quality needles. Change needle often.



- ### Seam Allowance Lines
- The lines on the needle plate and bobbin cover plate help measure seam width.
- The number indicates the distance between the center needle position and the seam allowance line.

		Lines on needle plate			
		15	20	4/8"	5/8"
		Inches			
		Millimeters			

- ④ Center needle position
- ⑤ Edge of fabric
- ⑥ Needle plate guide lines



How to Lower the Feed Dog

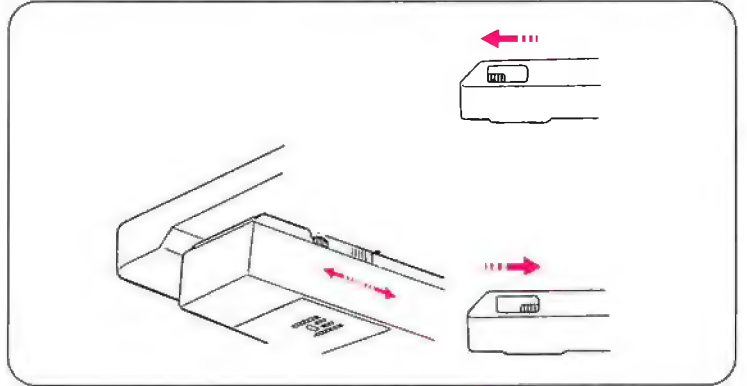
The feed dog must always be up for ordinary sewing.

You may lower the feed dog manually for special sewing techniques such as free motion embroidery. Locate the feed dog lever on the back of the free arm. Slide the lever either to the right (down) or to the left (up).

The feed dog lowers automatically:

- When the patchwork mode – freehand quilting key is pressed.
- When the embroidery modes are selected.

See page 26 to use the **ADJ** key for feed dog position.

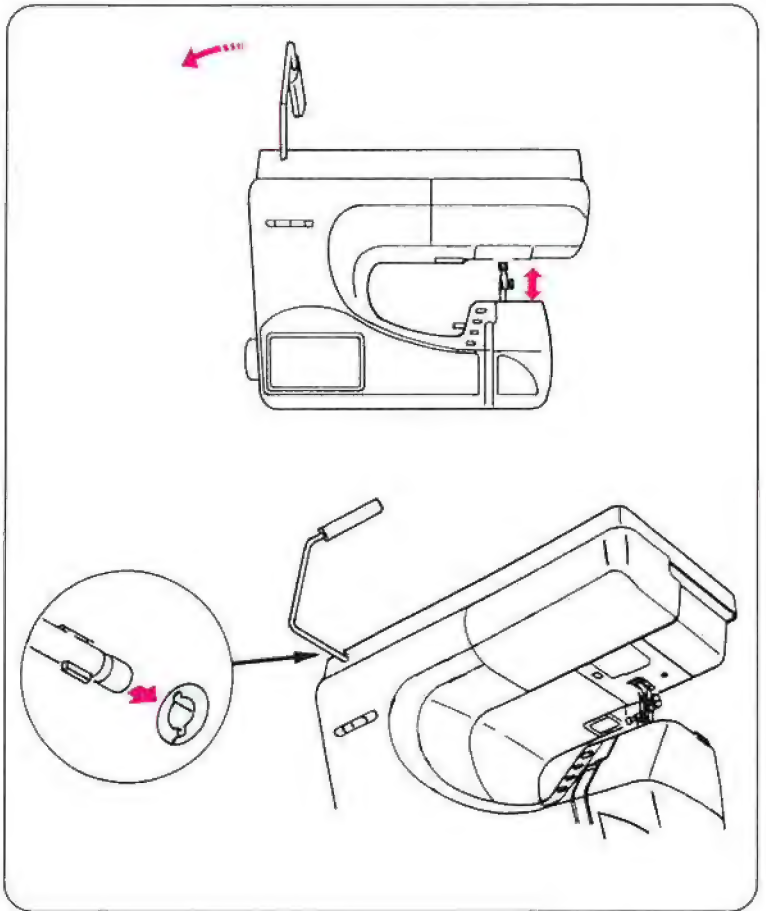


How to Attach the Knee Lifter

The knee lifter allows you to raise or lower the presser foot without using your hands. This is especially beneficial when pivoting corners or while sewing patchwork pieces.

- Insert the knee lifter in the knee lifter hole. (Match the tab on the lifter with the notch in the hole.)
- The presser bar rises equal to the amount of pressure applied to the knee lifter.

** Some countries do not include the knee lifter feature.*



FUNCTION KEYS

① Up/Down Needle Key

When you press this key:

- If the needle is up, the needle will immediately go to its lowest position.
- If the needle is down, the needle will immediately go to its highest position.

② Auto-Lock Key

Press this key while sewing a straight stitch, zigzag stitch or multiple zigzag stitch (stitches 1, 2, 8 and 9), and the machine will sew a few stitches in place and stop automatically. Press this key while sewing utility or decorative stitches and the machine will complete the stitch, lockstitch and stop.

③ Reverse Key

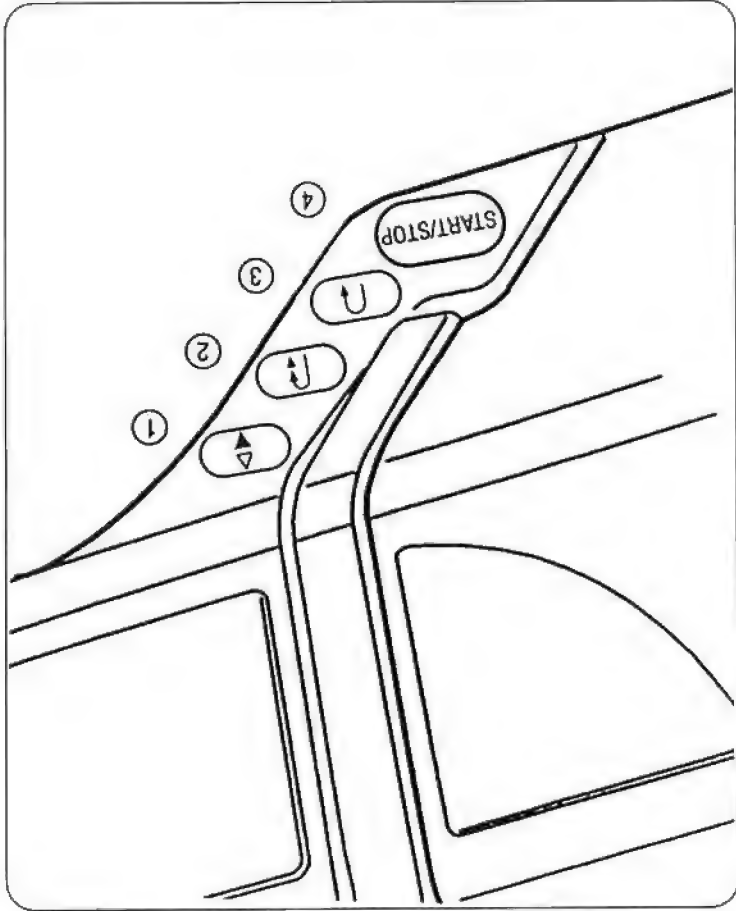
If you are sewing a straight stitch, zigzag stitch or multiple zigzag stitch (stitches 1, 2, 8 and 9), press and hold the reverse key. The machine will sew in reverse until you release the key.

If you are sewing utility or decorative stitches, when you press this key the machine will immediately stop and sew a locking stitch.

④ Start/Stop Key

The start/stop key operates the machine when sewing automatic embroidery. It may also be used for ordinary sewing. Press the key and the machine speed is determined by setting the speed control lever. See page 7.

NOTE: The light on the key changes from green to red while sewing.



SECTION II

Getting Ready to Sew

Needle and Thread Selection

In general, fine thread and needles are used for sewing lightweight fabrics and heavier threads and larger needles are used for sewing heavyweight fabrics. There are many specialty needles available from your sewing machine dealer.

A denim needle with a sharp tip is used to effectively pierce dense fabrics such as denim and canvas. For topstitching, a special topstitching needle with a larger eye accommodates heavier weight thread. Leather needles punch small holes in leather and suede allowing

the thread to follow through the hole. Always test thread and needle size on a scrap piece of fabric.

Check your needles frequently for rough or blunt tips. Snags and runs in knits, fine silks and silk-like fabrics are permanent and are often caused by damaged needles.

When sewing stretch, very fine or synthetic fabrics, use a stretch needle. The stretch needle prevents skipped stitches.

Always purchase good quality thread. It should be strong, smooth and consistent in thickness. Use the same thread for needle and bobbin.

WEIGHT	FABRIC	TYPE OF NEEDLE	NEEDLE SIZE
Very light	Chiffon, Georgette, Fine Lace, Organdy, Tulle	Universal	9 (65)
		Ball Point	9 (65)
Light	Batiste, Voile, Lawn, Pure Silk, Crepe de Chine, Sheer Crepe, Chambray, Handkerchief Linen, Gingham, Challis, Percale, Wool Crepe, Peau de Soie, Taffeta, Satin, Silk Surah, Satin-backed Crepe, Ciana	Stretch Needle	11 (75) 11 (75) 12 (80)
		Universal	11 (75) 11 (75)
	Single Knits, Jersey, Swimwear, Tricot	Stretch Needle	11 (75) 11 (75)
	Leather, Suede	Wedge Point	11 (75)
Medium	Flannel, Velour, Velvet, Muslin, Velveteen, Poplin, Corduroy, Broadcloth, Linen, Chintz, Gabardine, Felt, Terry, Burlap, Quilted Fabrics	Universal	14 (90)
	Double Knits (synthetic and natural), Stretch Velour, Stretch Terry, Sweater Knits	Ball Point	14 (90)
	Leather, Vinyl, Suede	Wedge Point	14 (90)
	Denim, Sailcloth, Ticking	Denim Needle	16 (100)
Heavy	Double Faced Wool, Heavy Coating, Fake Fur, Drapery Fabrics	Universal	16 (100)
	Leather, Suede	Wedge Point	16 (100)
	Canvas, Duck, Upholstery Fabrics	Universal	18 (110)
Very heavy	Topstitching for Special Finish	Topstitching Needle	11 (75) 14 (90)

Connecting Machine to Power Supply

- Before connecting the power cord, make sure the voltage and frequency shown on the machine are identical to your electrical power.
- To sew using foot control, turn off the power switch. Insert the foot control plug and machine plug in the machine and the power supply plug in the wall outlet.
- To sew using start/stop key, turn off the power switch. Insert the machine plug in the machine and the power supply plug in the wall outlet.
- Turn on the power switch and light switch.

- | | |
|---------------------|---------------------|
| ① Foot control plug | ⑤ Power supply cord |
| ② Machine plug | ⑥ Foot control |
| ③ Power supply plug | ⑦ Light switch |
| ④ Power switch | |

- NOTE:**
- The start/stop key cannot be used when the foot control is plugged in for ordinary sewing. (The light on the key will be out.)
 - The foot control cannot be used for sewing automatic embroidery.

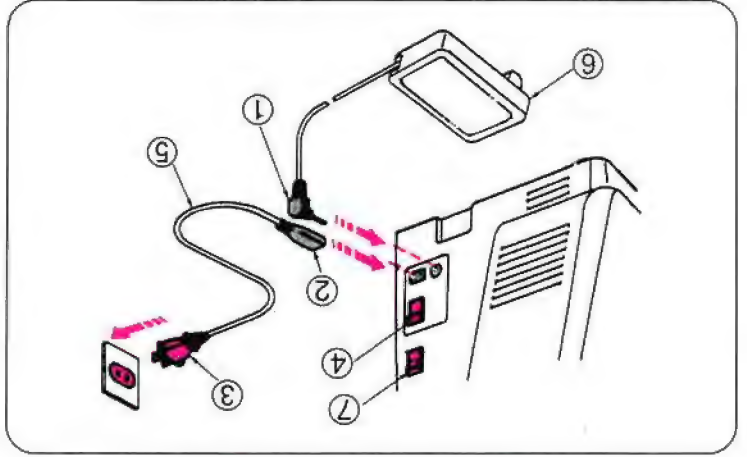
For Your Safety

1. While the machine is in operation, always keep your eye on the sewing area and do not touch any moving parts such as the thread take-up lever, flywheel or needle.
2. Always turn off the power switch and unplug from the power supply:
 - when leaving the machine unattended,
 - when attaching or removing parts,
 - when cleaning the machine.
3. Do not place anything on the foot control.

Operating Instructions:

For appliances with a polarized plug (one blade wider than the other).
To reduce the risk of electric shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.

Foot Controller Model 21371 use with Elna Sewing Machine Model 9008. (CE20)
(For U.S. market only).



Computer Display Screen

When the machine is turned on, the menu screen containing the mode selection keys will appear.

Mode Selection Keys

① Straight stitch, buttonhole and utility mode. See page 20.

② Decorative mode. See page 54.

③ Built-in letters and numbers mode. See page 65.

④ Patchwork/quilting mode. See page 70.

⑤ Normal embroidery mode. See page 74.

⑥ Edit design mode. See page 88.

The machine will automatically select the key and set itself to sew a straight stitch in center needle position.

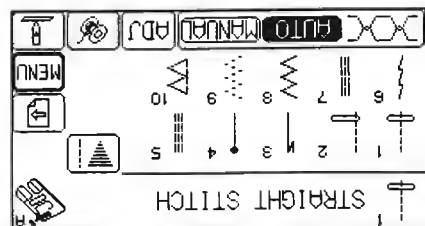
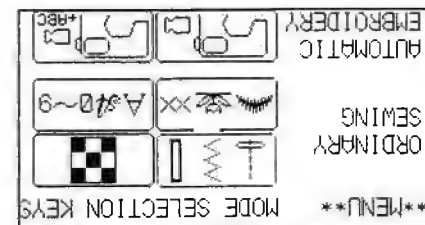


NOTE: The Elna CE 20 is equipped with a protective circuit to prevent overheating. The machine will stop automatically if it is running overloaded for a long time. Should this occur, follow the message that appears on the computer display screen.

- After turning off the machine, wait 5 seconds before turning it on.

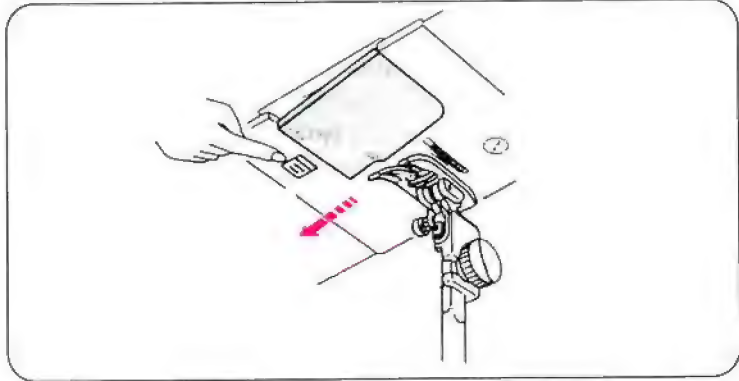
CAUTION

- Do not touch the surface of the computer display screen or program panel keys with hard or sharp objects such as pencils or screwdrivers. It is not necessary to press hard on the stitch/function keys; a light touch is all that is needed.
- Use a dry, soft cloth to wipe off the screen.

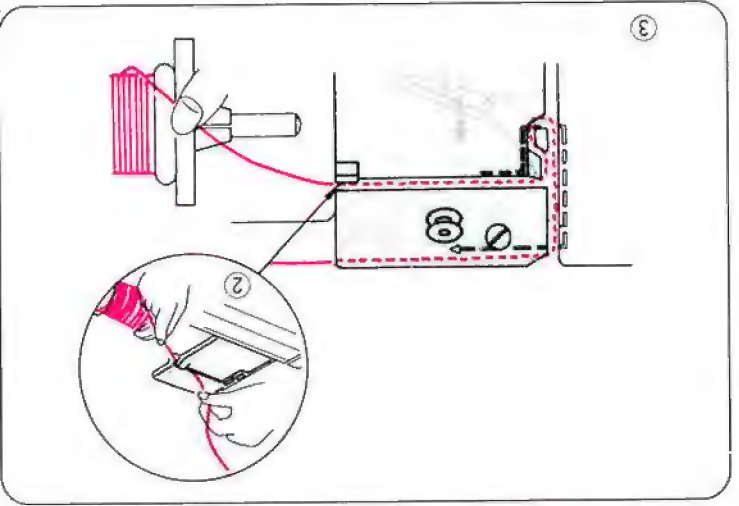
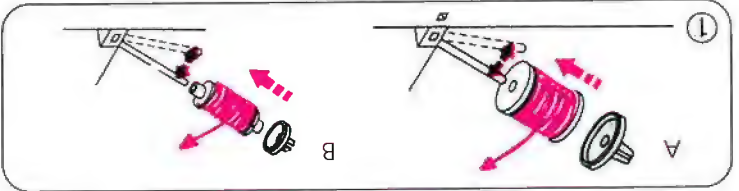
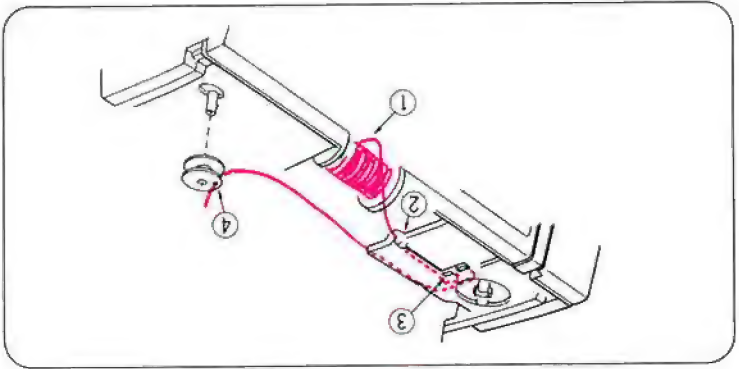
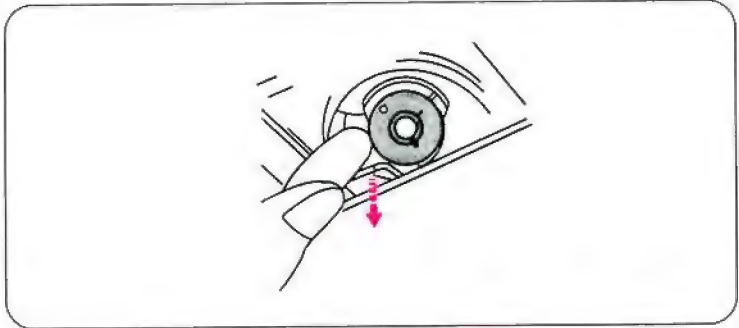


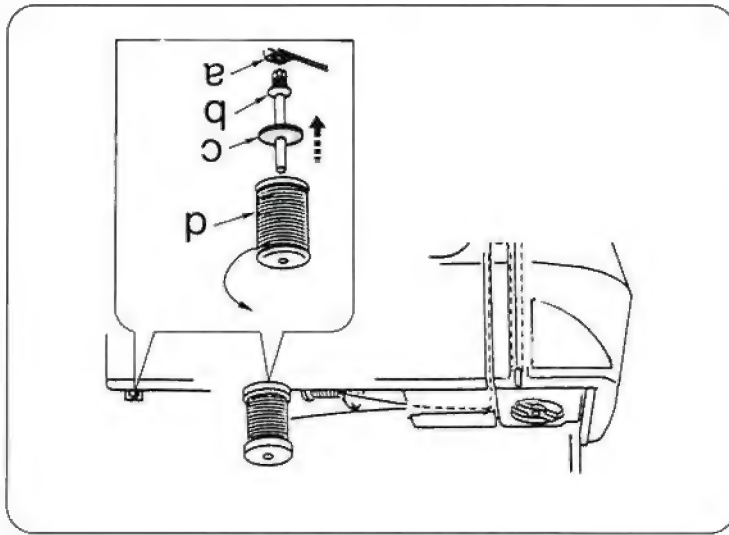
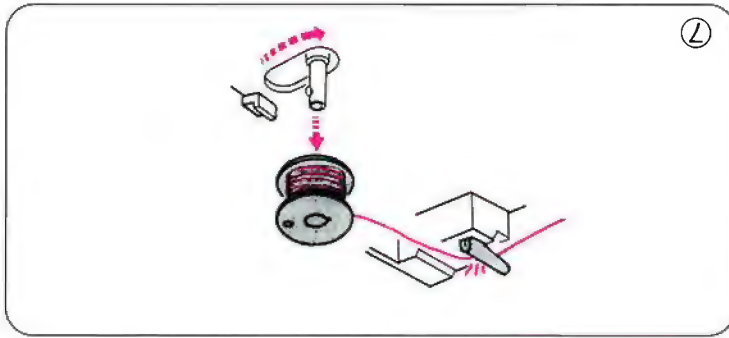
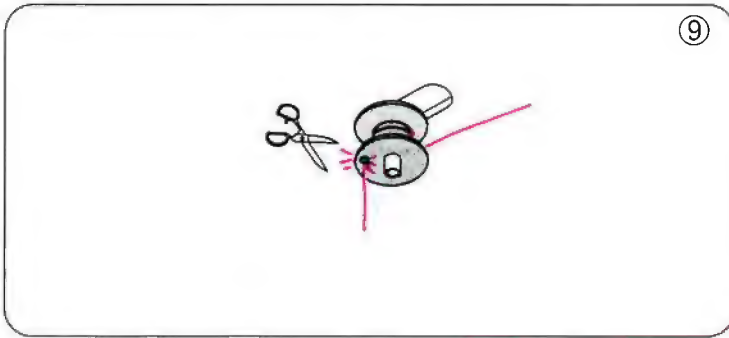
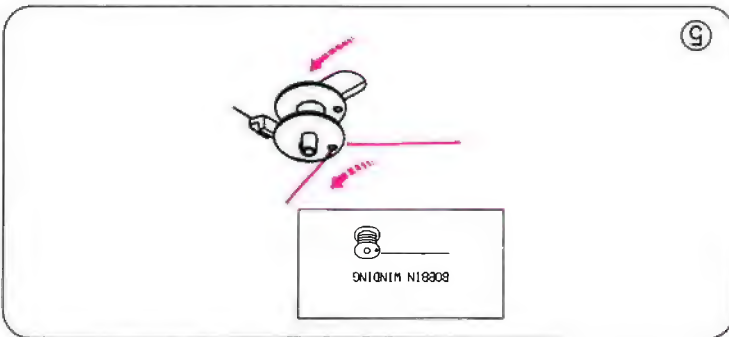
Winding the Bobbin

Remove bobbin by sliding the bobbin cover plate release button to the right and lifting away the bobbin cover plate.



Lift out the bobbin.



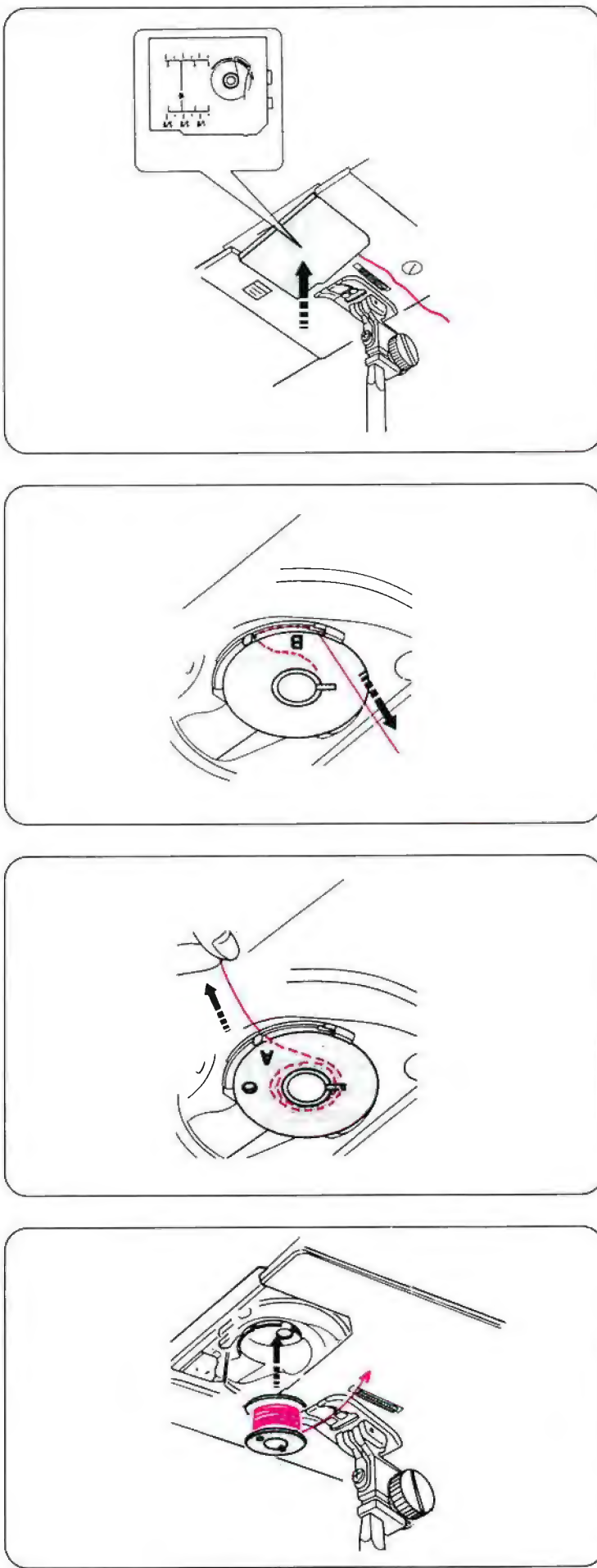


- ⑤ Place the bobbin on the bobbin winder spindle and push it to the right. (The computer display screen will show "Bobbin Winding" message.)
- ⑥ Holding the free end of the thread, press the foot control. Stop the machine when it has made a few turns and cut the thread tail close to the hole in the bobbin. Press the foot control again. When the bobbin is fully wound, it will stop automatically.
- ⑦ Return the bobbin winder to its original position by moving the spindle to the left; cut the thread as shown.
- The machine will not sew until the spindle is in the left position.
 - The machine stops automatically after 2 minutes.

The additional spool pin may be used to wind an extra bobbin without unthreading the machine.

Procedure – Insert the additional spool pin in one of the two holes. Place the felt and spool on the pin with the thread coming off the spool as shown.

- a. Additional spool pin hole
- b. Additional spool pin
- c. Spool pin felt
- d. Thread spool



Inserting the Bobbin

Place the bobbin in the bobbin case with the thread running counterclockwise.

Guide the thread into notch A on the front side of the bobbin case.

Hold the bobbin with your right hand and pull the thread to the left, through the tension spring blades. Continue pulling the thread lightly until the thread slips into notch B.

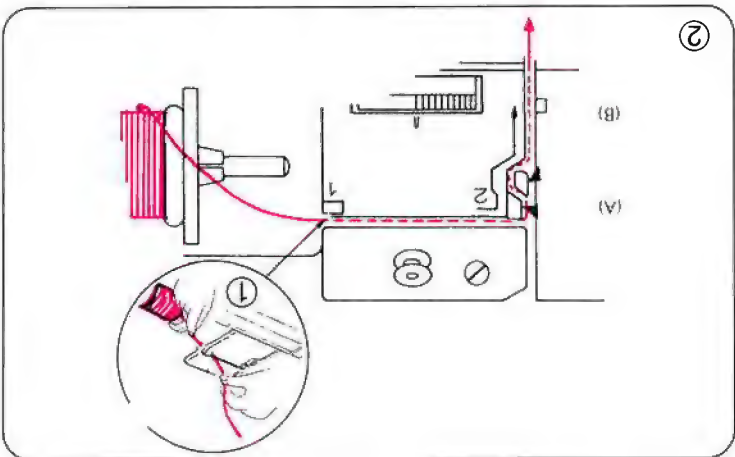
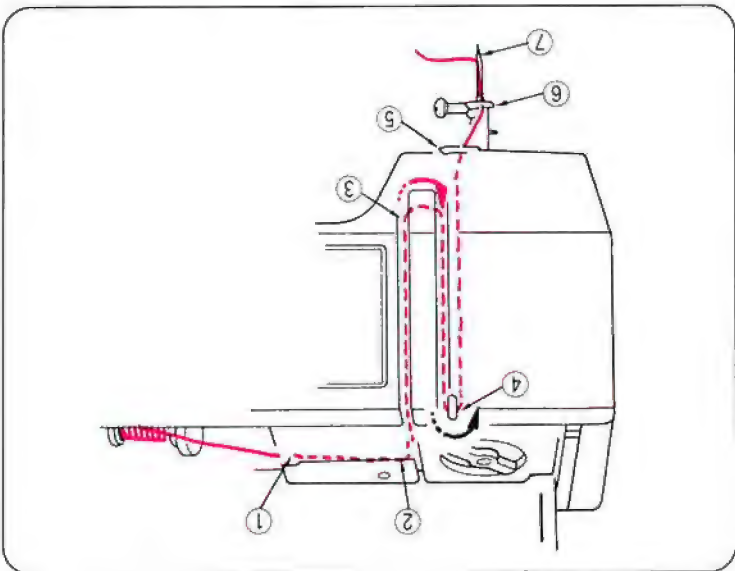
Pull out about 15 cm (6") of thread.

Replace the bobbin cover plate.

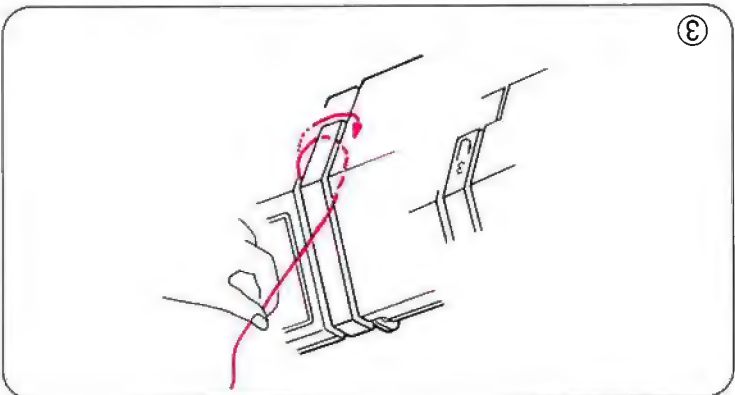
Check the threading by referring to the diagram shown on the bobbin cover plate.

Threading the Machine

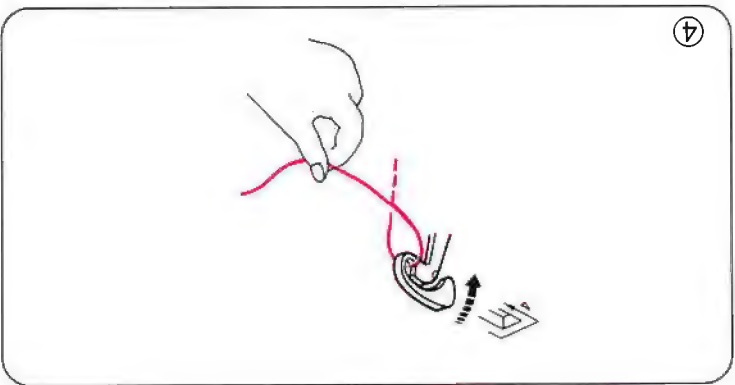
- ① Pull the thread away from the spool pin and with both hands press the thread downwards into the slit.
- ② Raise the presser foot. Press the up/down needle key until the needle is in an up position.



- ② Pull the thread around thread guides A and B.

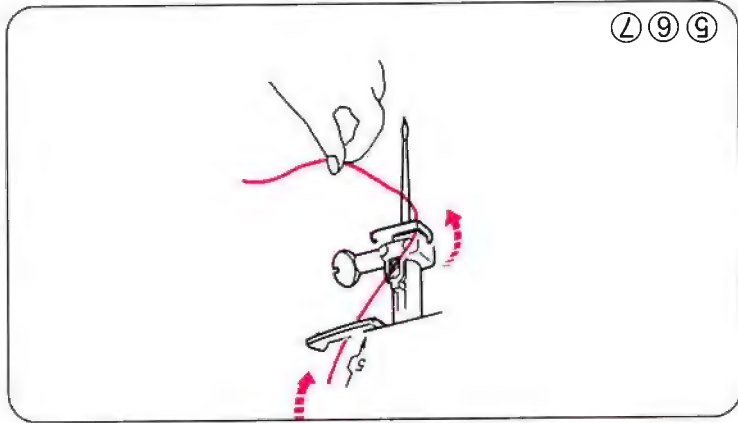


- ③ Guide the thread down and around the check-spring holder.



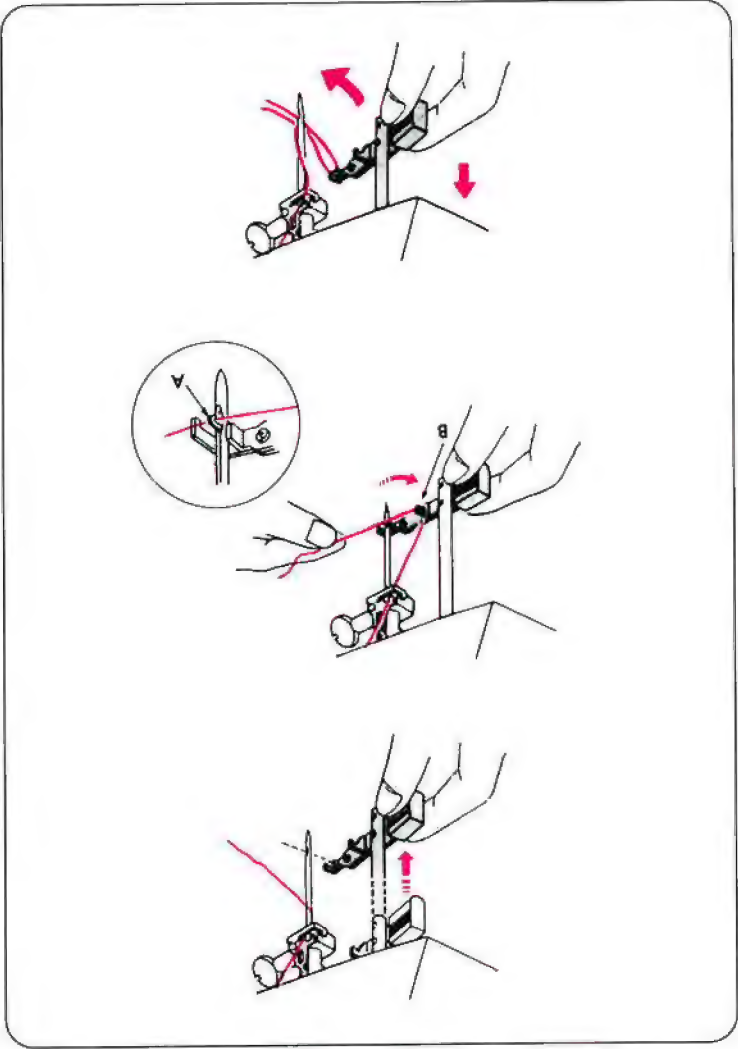
- ④ Firmly pull thread from right to left, over the take-up lever and down into the take-up lever eye.

- ⑤ Proceed down through the lower thread guide.
 - ⑥ Slide the thread to the left behind the needle bar thread guide.
 - ⑦ Thread the needle from front to back or use the automatic needle threader.
- * This machine is equipped with a thread breakage sensor. If the machine is run without thread, it automatically stops after about 10 cycles.



Automatic Needle Threader

- Raise the needle to its highest position. Lower the needle threader lever as far as it will go.
- Turn the lever in the direction of the arrow in the illustration, then insert Hook A into the needle eye. Bring the thread around Guide B and under Hook A.
- Turn the lever in the direction of the arrow in the illustration, drawing the thread loop through the needle.
- Release the lever and let the needle threader return to its original position.
- Manually bring the thread through the needle eye by pulling the thread loop to the back.
- The needle threader can be used with #11 to #16 size needles. Thread weight may vary from 30 to 100.



Drawing Up the Bobbin Thread

Raise the presser foot. Hold the needle thread lightly with your left hand.

Press the up/down needle key twice to pick up the bobbin thread. Draw up the needle thread together with a loop of bobbin thread.



① Up/down needle key



Slide 10 cm (4") of both threads to the back under the presser foot.



SECTION III


Straight Stitch, Buttonhole and Utility Mode


Function Keys and Stitch Selections


 **Stitch Width and Length Key**
Width and length are automatically set after selecting the stitch. Press the  key to adjust stitch width or length.

 **Next Page Key**
The screens may be alternated to show the various options. Press the  key to move from screen A to B to C to D.

 **Previous Page Key**
The screens may be alternated to show the various options. Press the  key to move from screen D to C to B to A.

 **Needle Stop Position Key**
The needle stop position key only activates the up or down positioning after sewing.

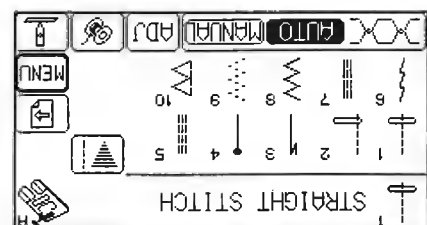
 Needle will stop down and will continue to stop down.

 Needle will stop up and will continue to stop up.

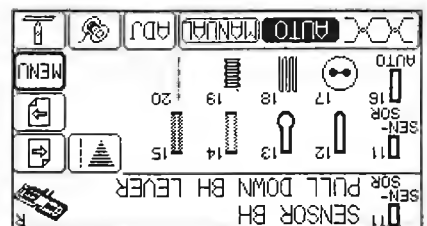
 **Bobbin Thread Sensor Key**
Press the  key.

A message will appear indicating whether or not there is sufficient bobbin thread.

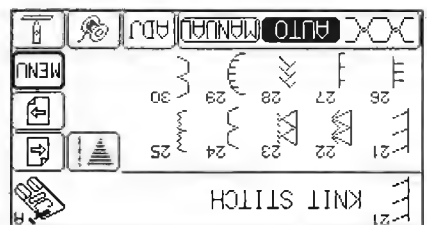
Replace bobbin thread when the message reads "Bobbin Thread Almost Out".



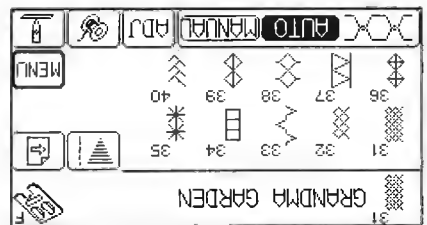
A



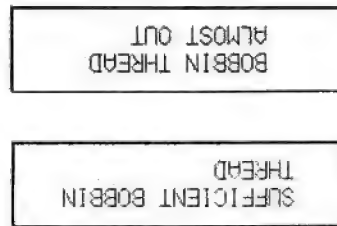
B

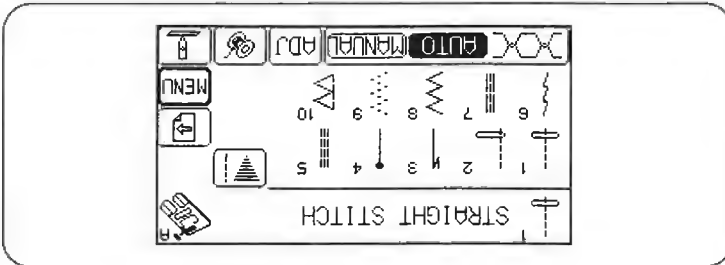


C



D





Adjustment Key

Press the **ADJ** key to change:

- Automatic Thread Tension – See page 25.
- Cloth Guide Position – See page 25.
- Feed Dog Position – up or down – See page 26.
- Free Arm – See page 26.
- Cm/Inch Indication – See page 27.



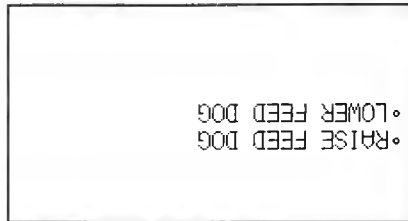
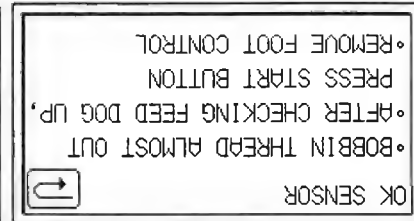
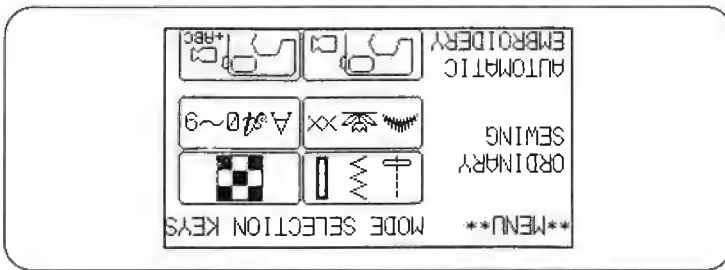
Auto Manual Key

The machine automatically sets the tension after selecting a stitch. Press the **MANUAL** key to change the tension.



Menu Key

Press the **MENU** key to return the computer display screen to the menu screen.



OK Sensor

If the OK sensor appears on the screen after sewing starts, check the items listed, then press the **OK** key and continue sewing.

(If the darning stitch is selected, you will be reminded to lower the feed dog.)

How to Select a Stitch

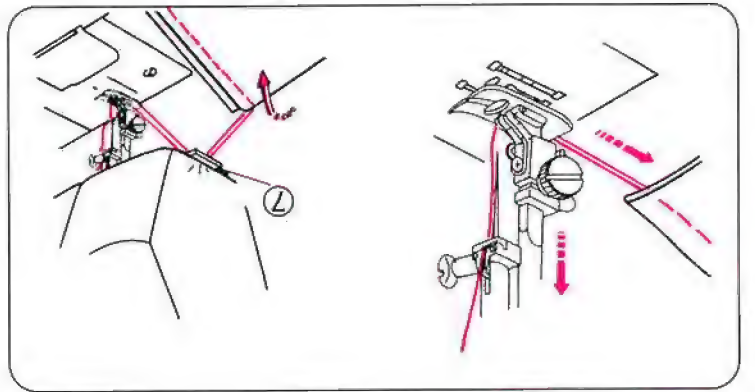
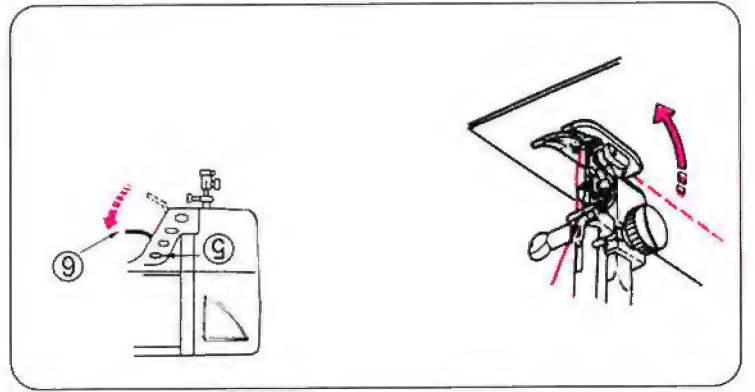
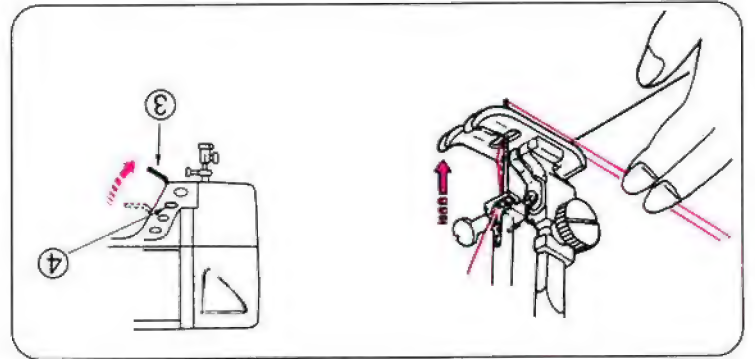
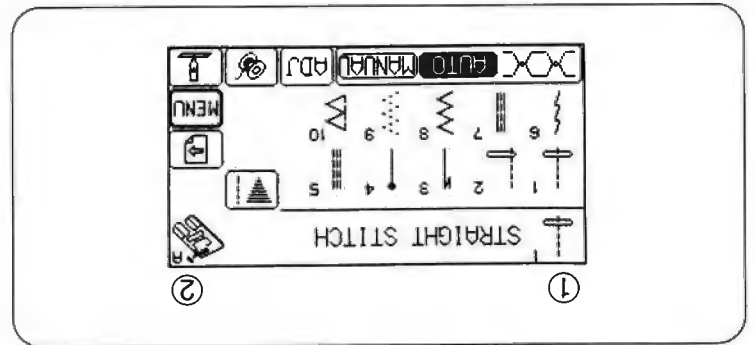
Press the **STRAIGHT STITCH** key.

The machine sets itself automatically to sew a straight stitch in center needle position.



Press the **STRAIGHT STITCH** key.


Stitch **STRAIGHT STITCH** is selected and indicated in the upper left corner of the screen.

The upper right corner suggests the appropriate foot is **STRAIGHT STITCH**.



Straight Stitch

Press the  key. The machine will sew the straight stitch in the center needle position. (Press the  key and machine will use left needle position.) The basic straight stitch is used for sewing seams, zipper insertion, pintucks and rolled hems.

- ①  Straight stitch
- ② A: Metal foot

Starting to Sew

Raise the presser foot and position the fabric next to a seam allowance line on the needle plate. See page 8. Lower the needle to the point where sewing is to begin. Pull the threads under the foot towards the back and lower the presser foot. Press the foot control. Gently guide the fabric along the seam allowance line letting the fabric feed naturally.

* To fasten the threads at the beginning of a seam, press and hold the reverse key while sewing.

- ③ Presser foot lever
- ④ Reverse key

Changing Sewing Direction

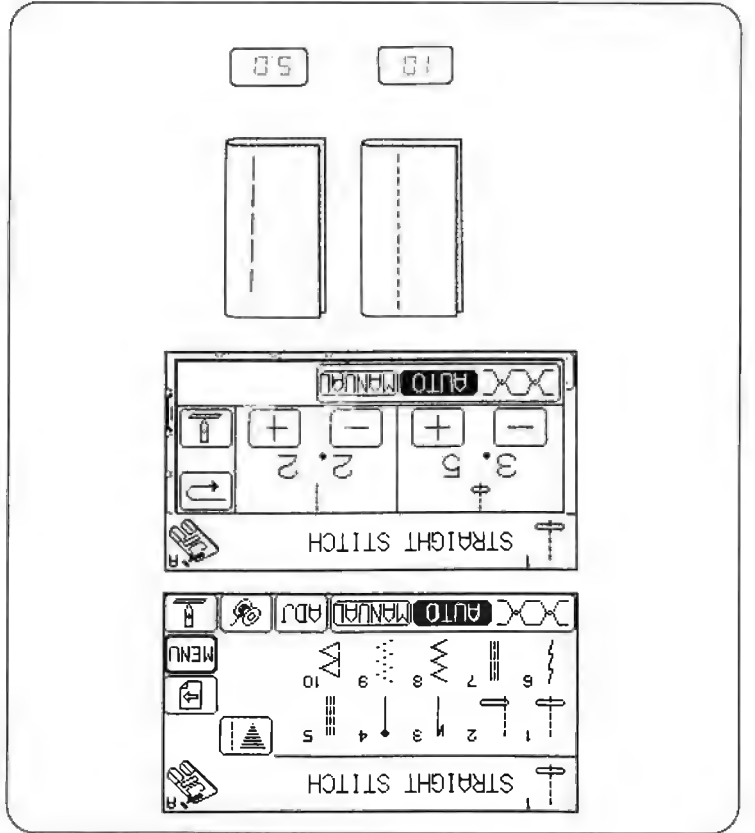
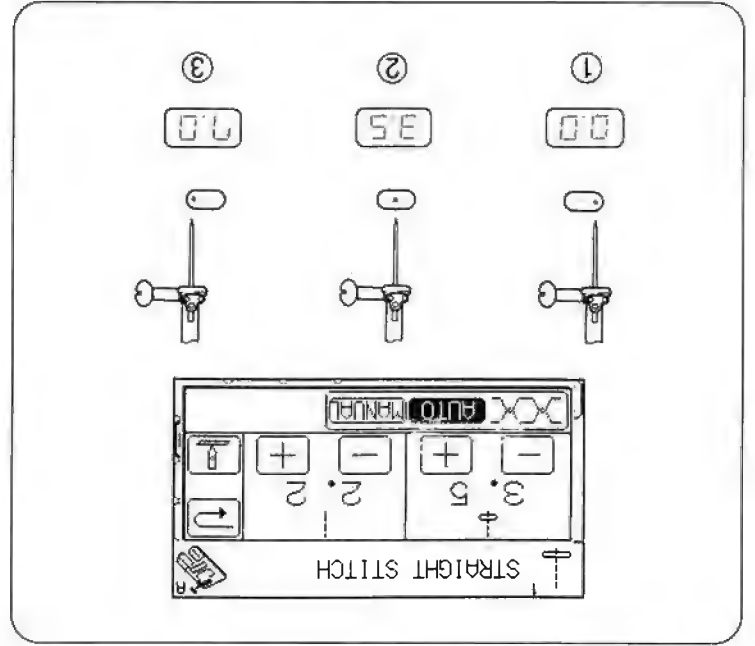
Stop the machine and bring the needle down into the fabric by pressing the up/down needle key. Raise the presser foot. Pivot the fabric around the needle to change sewing direction. Lower the presser foot.

- ⑤ Up/down needle key
- ⑥ Presser foot lever

Finishing Off a Seam

To fasten the threads at the end of a seam, press and hold the reverse key while sewing. Raise the presser foot. Remove the fabric; pull the threads to the back and cut threads using the thread cutter. (The threads are cut the proper length to start the next seam.)

- ⑦ Thread cutter



Adjusting Stitch Length

- Press the key. Use the right side keys; press key to decrease and key to increase.
- The pre-programmed setting is suitable for most of your sewing needs; sometimes different fabrics require an adjustment to be made.
- Press and hold down the key or key to quickly change the display.
- * The reverse stitch length will not sew any longer than 3 mm (1/8").

- The straight stitches and quilting stitches listed below allow you to move the needle to any position. There is a total of 15 needle positions. Press the key. Use the left side keys; press and key to move right.
- ① Left position
 - ② Center position
 - ③ Right position
- After adjusting stitch length and needle position, press the key to return to screen A.
- Straight stitches**
- 1 2 3 4 5 7 20 122 123
- Quilting stitches**
- 154 155 156 157

Thread Tension

The Elina CE 20 is programmed to automatically set the tension according to the stitch. The "Auto" setting will occasionally need to be set manually for:

- Stiff and thick fabric
- Numerous fabric layers
- Special sewing techniques

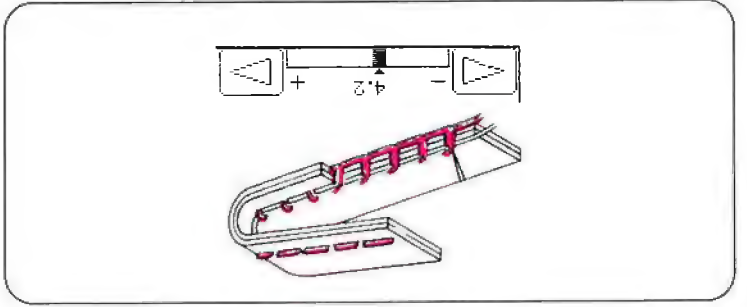
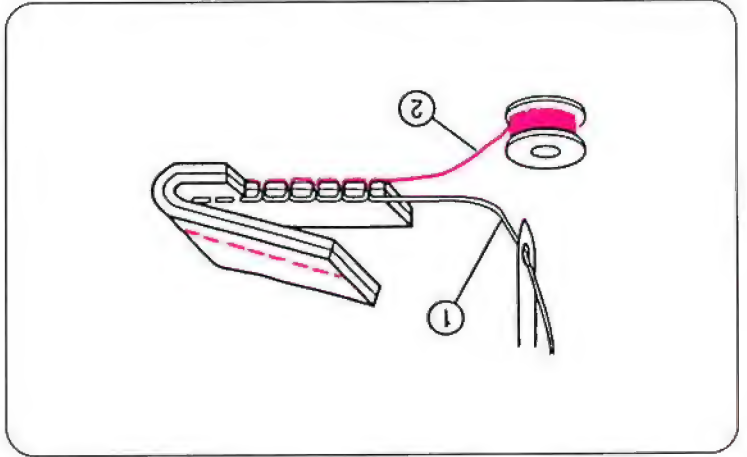
The ideal straight stitch will have threads locked between the two layers of fabric, as shown left (magnified to show detail).


- ① Needle thread
- ② Bobbin thread

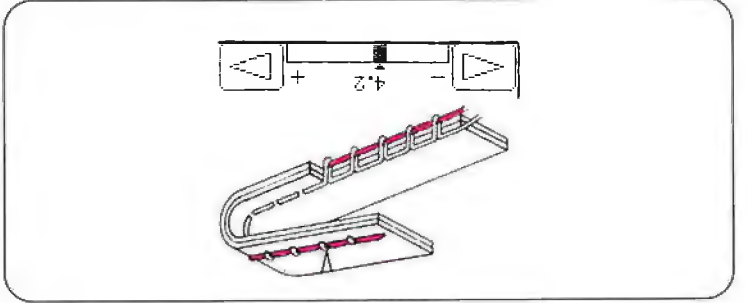
- When sewing a zigzag stitch, the needle thread should appear slightly on the fabric underside.


Look at the top and bottom of the stitch. Notice that there are no gaps; each stitch is smooth and even.

When adjusting needle thread tension, the higher the number, the tighter the needle thread.

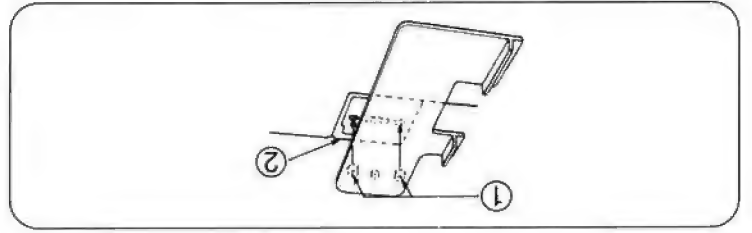
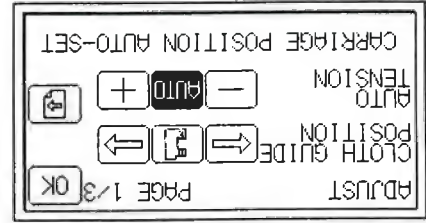
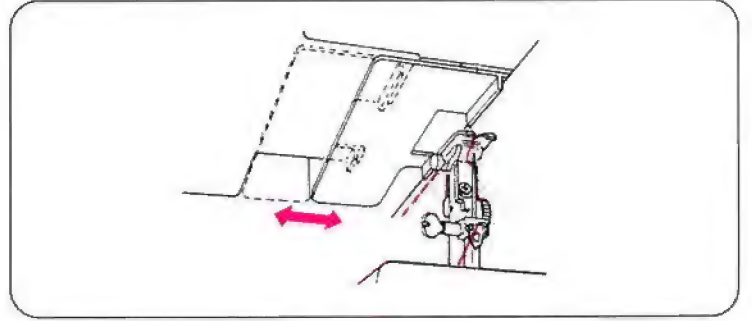


- **Tension is too tight**
The bobbin thread shows through on the top side of the fabric and feels bumpy.
Press **MANUAL** key. Press  to decrease tension.



- **Tension is too loose**
The needle thread shows through on the underside of the fabric and feels bumpy.
Press **MANUAL** key. Press  to increase tension.

- "▲" mark indicates auto position.
To return the thread tension setting to auto, select the stitch.






Cloth Guide

Attach the cloth guide by inserting the pins in the carriage holes.






- ① Pins
- ② Carriage

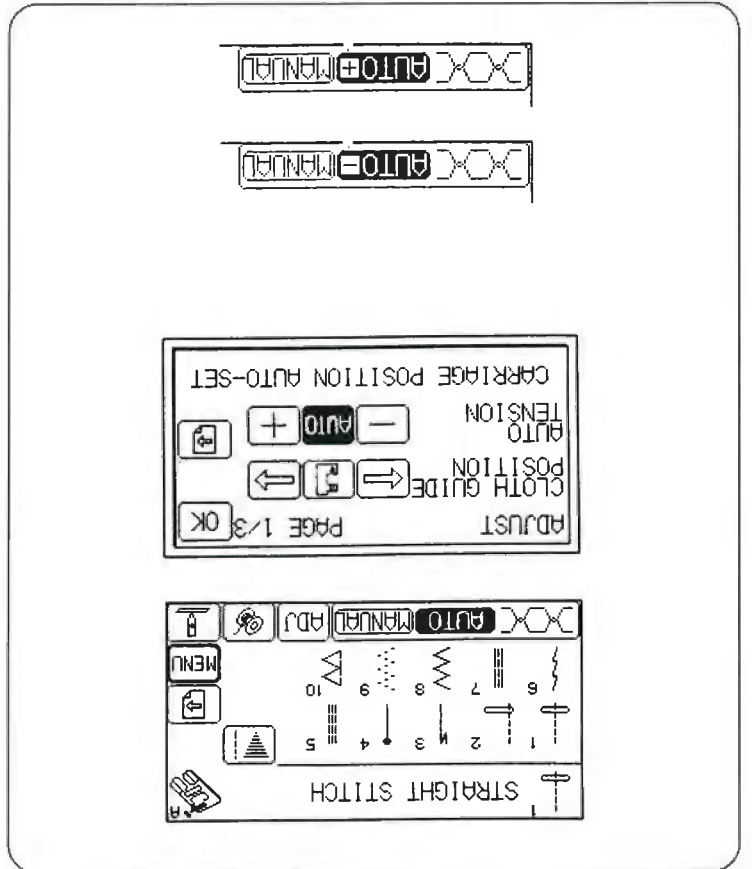
Press the **ADJ** key.

Press the picture  of the cloth guide and it moves 15 mm or 5/8" (depending on whether machine is set for centimeter or inch) from center needle position to the cloth guide.

Customize the cloth guide distance by pressing the  or  key.

Press the **OK** key.

When operating the , , or  keys, the needle should be raised. If the needle is in the down position, raise it by pressing the up/down needle key. * Return cloth guide to its original position by pressing the  key until the  is indicated. Press the **OK** key.




Auto Thread Tension

The "Auto" (default) thread tension may be altered and will affect all selected stitches.

Press the **ADJ** key.

Press the  key to decrease tension if tension is too tight.

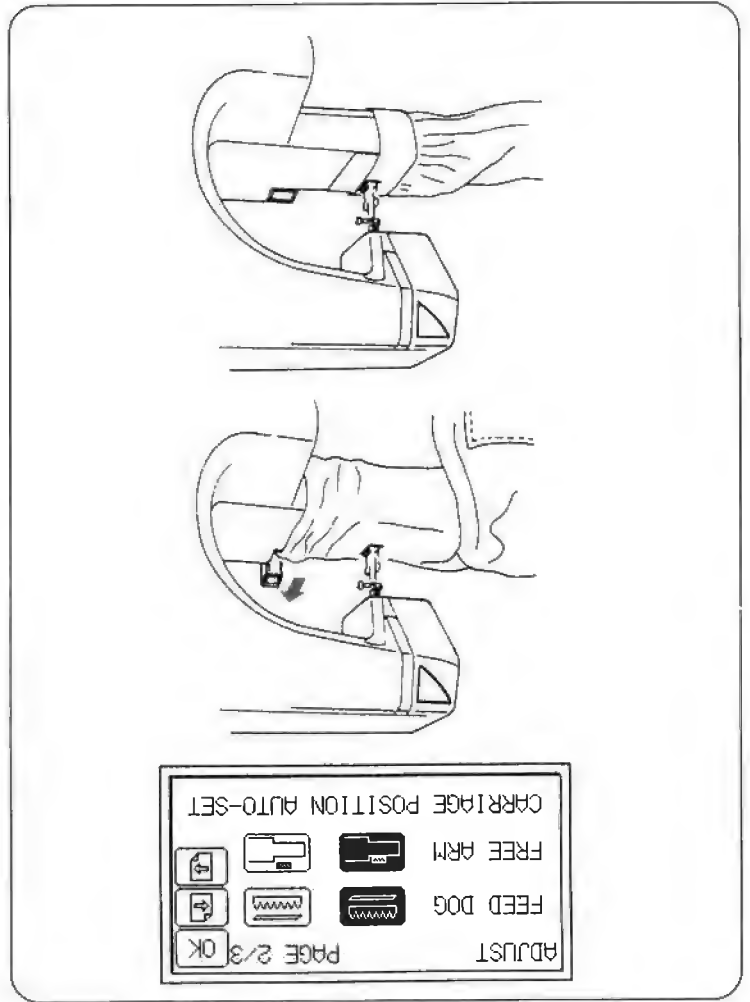
Press the  key to increase tension if tension is too loose.

Press the **OK** key.

* New settings stay memorized even when the machine is turned off.

"-" indicates looser "Auto" setting.

"+" indicates tighter "Auto" setting.



Free Arm and Carriage Position

The carriage may be moved away from the machine to expose a longer free arm.

Raise the needle to the up position. Clear the table surface of anything that might obstruct the carriage movement. (If the machine is in a cabinet, check that the machine is even or above the cabinet surface.)

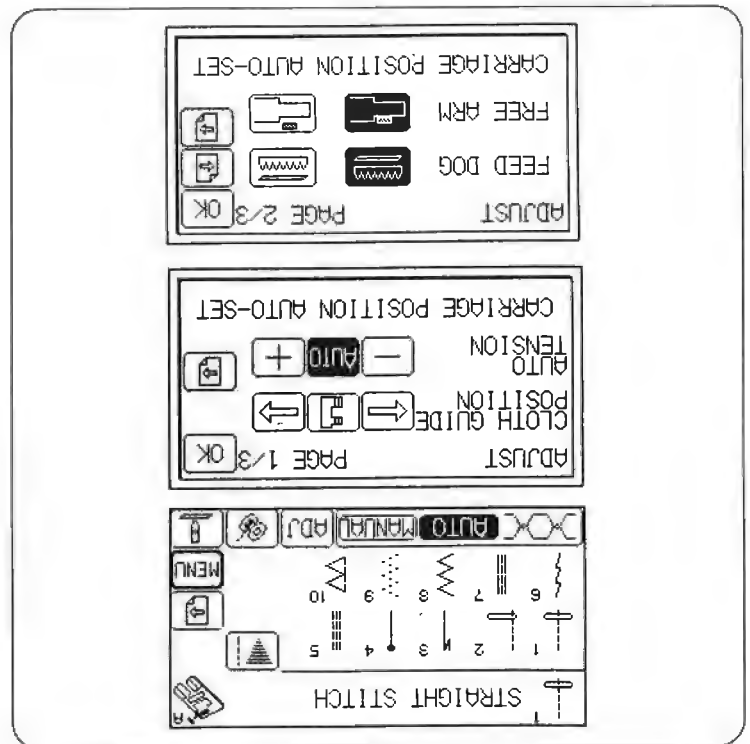
Press the **ADJ** key.

Press the **key to move carriage out.** (represented by a right-pointing arrow icon)

OR

Press the **key to move carriage in.** (represented by a left-pointing arrow icon)

Press the **OK** key.



Raise or Lower Feed Dog

Raise the needle to the up position.

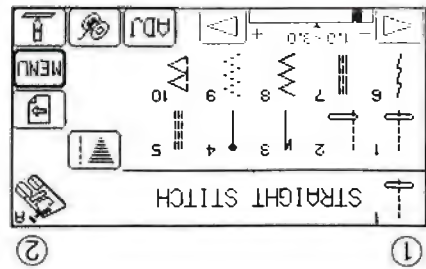
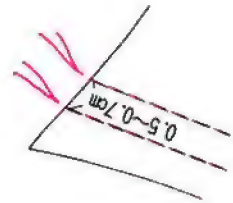
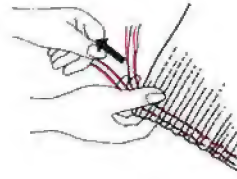
Press the **ADJ** key.

Press the **key.** (represented by a right-pointing arrow icon)

Press the **key.** (represented by a right-pointing arrow icon) or **key.** (represented by a right-pointing arrow icon)

Press the **OK** key.

See page 9 to manually position the feed dog.



Gathering

- ① Straight stitch
- ② A: Metal foot

Press **MANUAL** key. Press **MANUAL** key to decrease tension to 1.0 – 3.0.

Press **+** key. Press right side **+** key and increase stitch length to 5.0. Press **+** key. Use light to medium weight fabric.

Sew two rows of parallel stitches. Sew first row next to raw edge using foot A as guide. Sew second row next to first row using foot A as guide. Leave long thread tails at beginning and end of each row. Pull on the bobbin threads simultaneously from each end of the fabric until the desired amount is gathered. Knot the threads at each end and distribute the gathers evenly.

Press **+** key to reset machine for regular straight stitch settings.

Sew between two rows of stitching to secure gathering.

OR

Lay gather fabric over flat fabric and sew the two fabrics together directly on the second row of gathering stitches.

Centimeter/Inch Indication

Measurements appearing on the patchwork mode and cloth guide screen may be indicated in either centimeters or inches.

Press the **ADJ** key.

Press the **IN** key twice.

Press the **IN** or **CM** key.

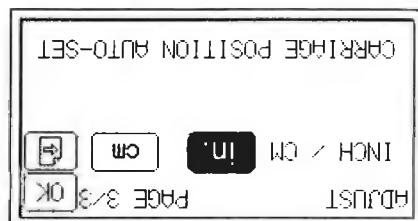
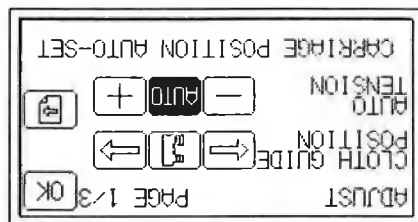
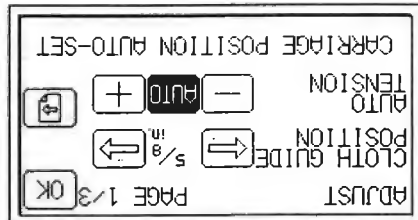
Press the **OK** key.

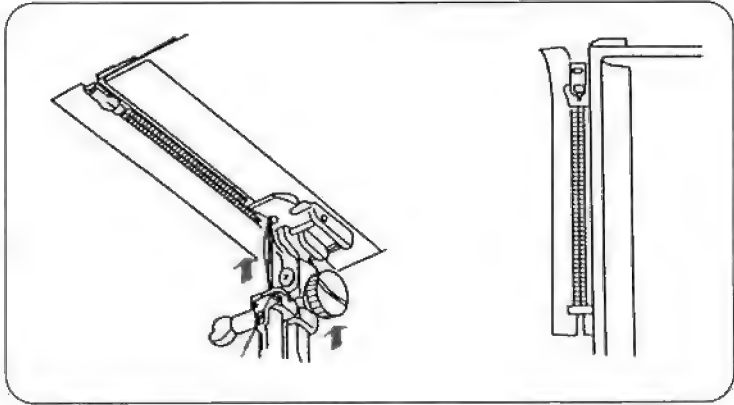
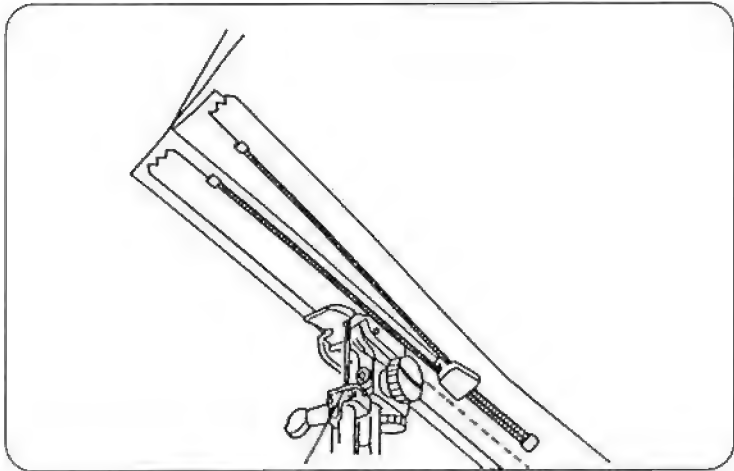
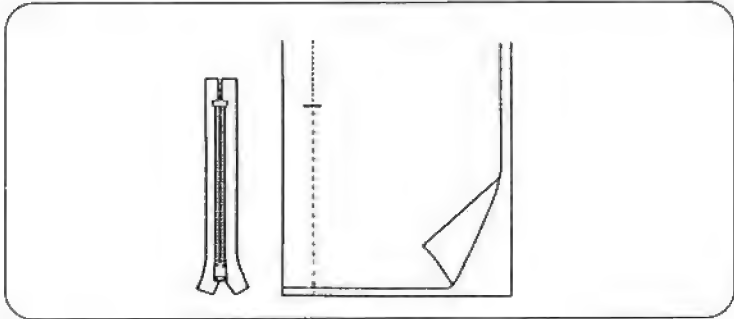
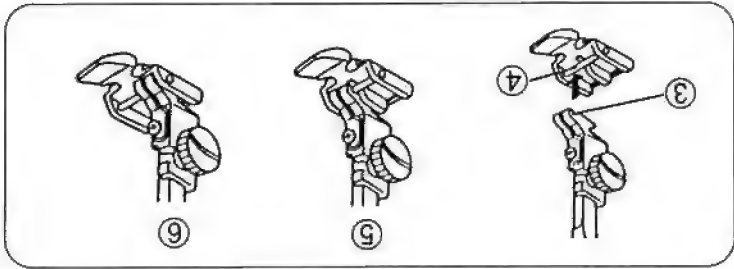
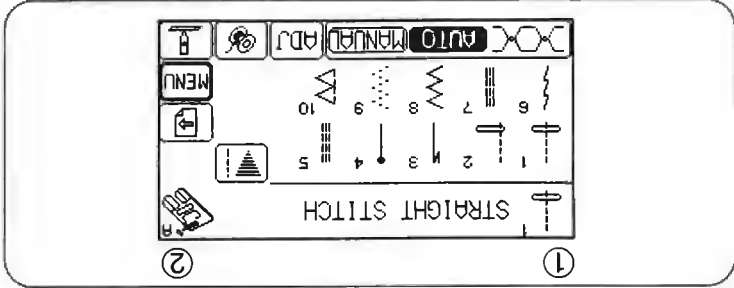
The machine will retain the measurement indication even after turning off the power.

Example: Press the **ADJ** key.

Press the **IN** key.

The measurement will appear in the cloth guide position display.





Zipper Insertion

- ① Straight stitch
- ② Zipper foot

- Attach the pin on the zipper foot to the groove on the shank.
- To sew the left side of the zipper, attach the zipper foot on the right-hand side.
- To sew the right side of the zipper, attach the zipper foot on the left-hand side.

- ③ Groove
- ④ Pin
- ⑤ Sew left side
- ⑥ Sew right side

Fabric Preparation

- Add 1 cm (3/8") to the zipper size. Use this measurement and mark the opening for the zipper.
- Place right sides of fabric together and sew the seam located below zipper placement. (Make sure to reverse sew the stitches directly below the zipper placement.)
- Increase stitch length to 4.5 and baste the zipper opening closed. Press the seam and basting seam open.

Lapped Application

- Open zipper and place it face down on the seam allowance. Teeth are on the seam line and zipper top is 1 cm (3/8") from fabric top edge. Attach foot with left side pin. Baste zipper in place, sewing from bottom to top.

- Close zipper. Turn zipper face up (right seam allowance forms a small fold at basting line) and smooth zipper teeth away from seam. Attach foot with right side pin. Reset straight stitch length to 2.2. Starting at the bottom, sew through the folded seam allowance and zipper tape.

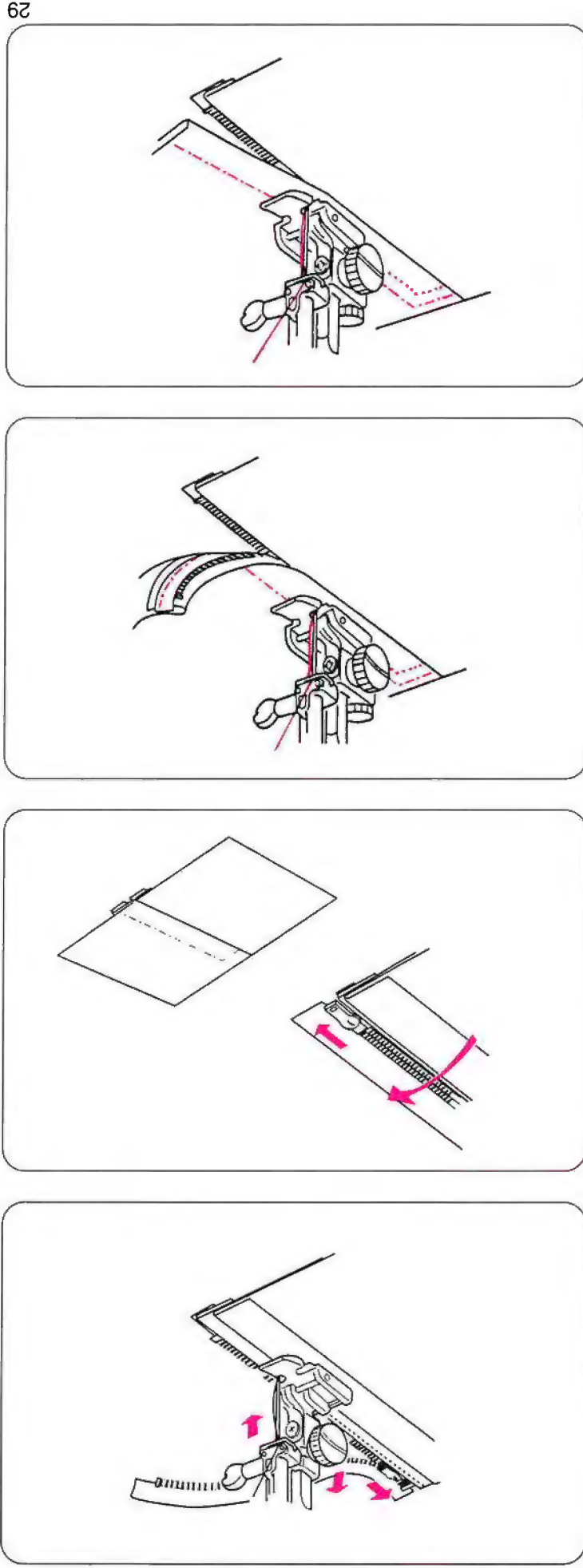
Zipper Sewing (cont'd)

Stop just before the zipper foot reaches the slider on the zipper tape. Lower the needle slightly into the fabric. Raise the zipper foot and open the zipper. Lower the foot and stitch the remainder of the seam.

Close the zipper and spread the fabric flat with the right side facing up. Baste through the opened seam allowance and zipper tape.

Move the zipper foot to the left side pin. Guide the edge of foot along the zipper teeth and stitch through the garment and zipper tape. Stop about 5 cm (2") from the top of the zipper.

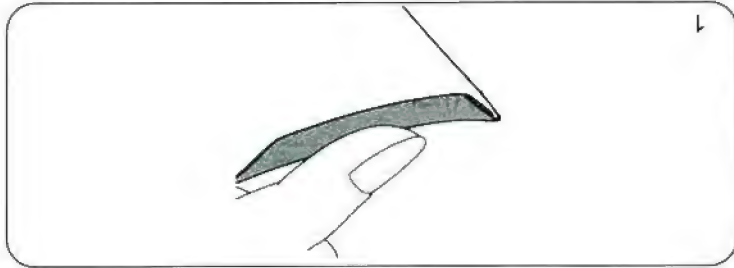
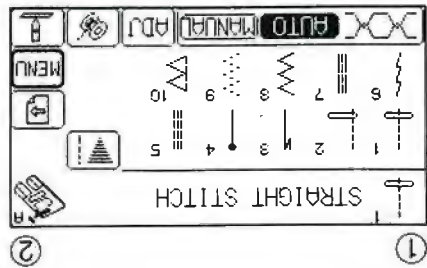
Slightly lower the needle into the fabric. Raise the foot, remove the basting stitches and open the zipper. Lower the foot and stitch the remainder of the seam, making sure the fold is even.



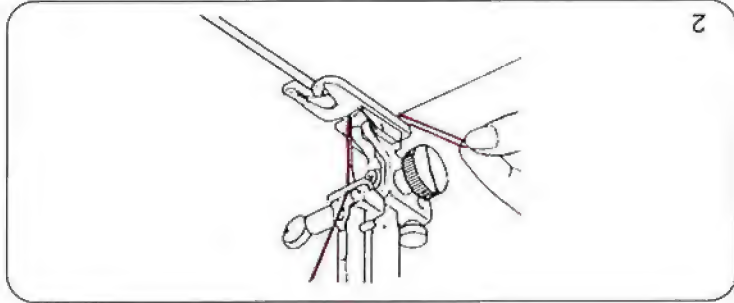
Rolled Hem

An easy, professional way to sew hems using the straight stitch. Recommended for fine, sheer fabrics used in bridal wear.

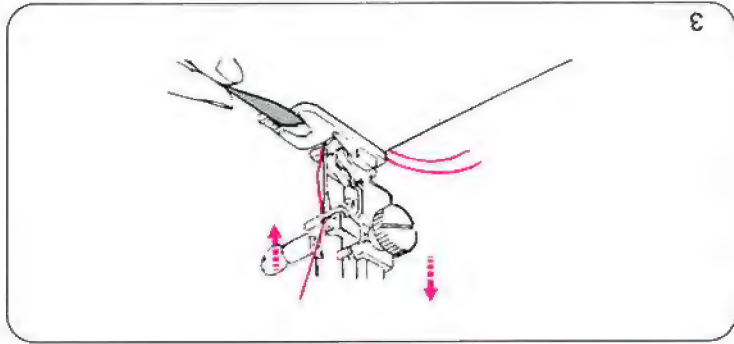
- ① Straight stitch
- ② D: Hemmer foot



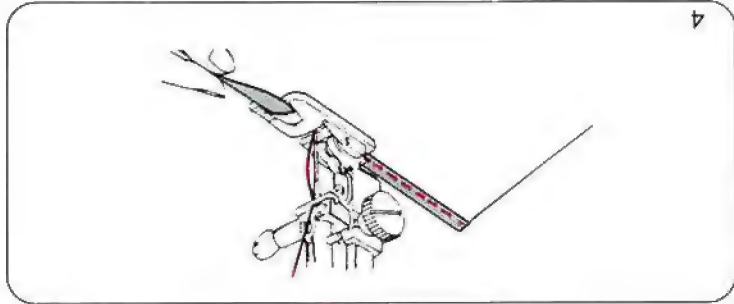
- 1 Make a double 3 mm (1/8") fold approximately 8 cm (3") in length.



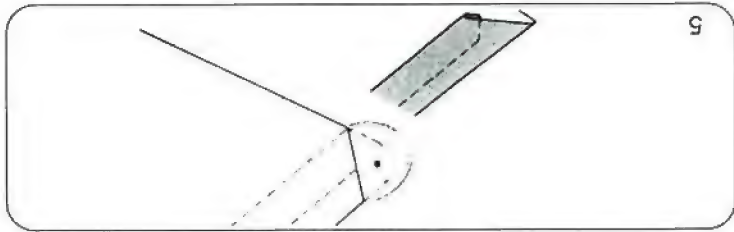
- 2 Lower the needle into the fabric at the point where sewing is to begin; lower the hemmer foot D. Sew 3 or 4 stitches while holding the needle and bobbin threads.



- 3 Lower the needle into the fabric and raise the hemmer foot. Insert the folded portion of the fabric into the curl of the hemmer foot.



- 4 Lower the hemmer foot; sew by lifting up the edge of the fabric to keep it feeding smoothly.



- 5 Trim about 6.5 mm (1/4") from corners to reduce bulk.
NOTE: Use zigzag stitch with stitch width 1.0 – 2.0 for variation.

Pintucks

Pintucks are a beautiful accent that may be added to any project.

Plan extra fabric to sew the pintucks. Create the pintucks before cutting out the final project dimensions.

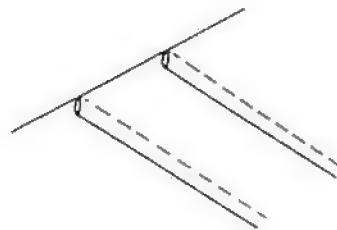
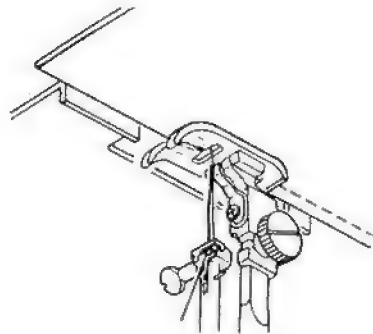
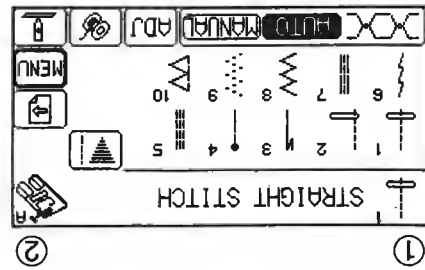
① Straight stitch
② A: Metal foot

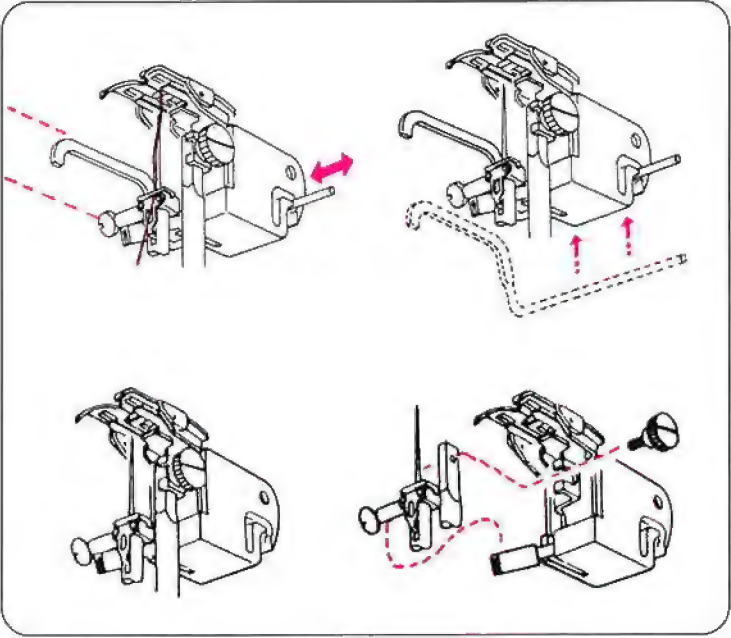
Attach cloth guide and set cloth guide distance between 1 mm and 3 mm (1/16" and 1/8"). See page 25.

Using a washable marker, prepare the fabric by drawing parallel lines for pintuck placement.

Fold fabric on first line with wrong sides together. Position folded edge next to fabric guide. Lower the presser foot. Sew, guiding the fabric along the cloth guide. Sew remaining pintucks in same method.

Press pintucks to one side.



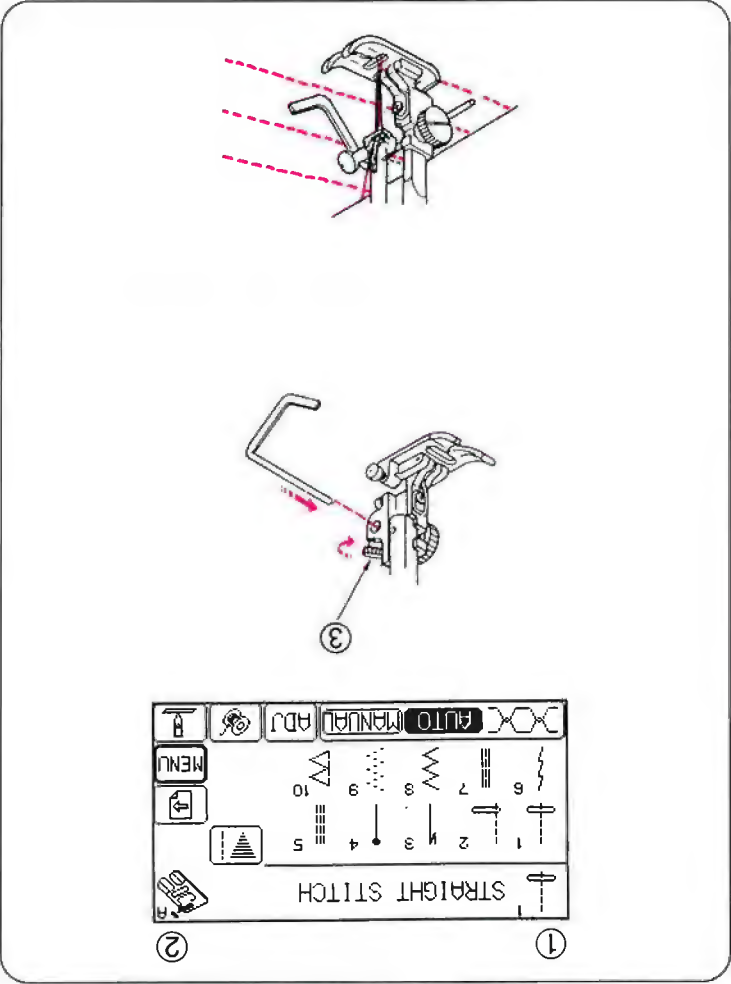


Walking Foot

The walking foot may be necessary to prevent quilt layers from shifting during the quilting process. The walking foot is also effective in preventing slipping or puckering because the fabric is between an upper and lower feed dog.

Attach the walking foot by raising the needle and presser foot. Remove the shank. Place the walking foot on the presser bar with the lever over the needle clamp screw; secure it with the thumbscrew.

Attach the walking foot quilting bar to the walking foot to sew parallel rows. Insert the walking foot into the rear groove on foot. Slide the walking foot quilting bar to set the width between rows.



Quilting

Quilting is produced by stitching two layers of fabric together with batting in between to add dimension and warmth.

Traditionally used for bedspreads, quilting is now used for crafts, garments and home decorating.

- ① Straight stitch
- ② A: Metal foot

The quilting bar is a guide for sewing parallel rows of stitching.

Attach the quilting bar by loosening the quilting bar screw.

Slide the quilting bar into the opening, set the width between stitching rows and tighten screw.

③ Quilting bar screw

Use a washable marker to draw the first line for stitching. Sew over line.

Sew all other rows guiding the quilt bar over the previous row of stitching.

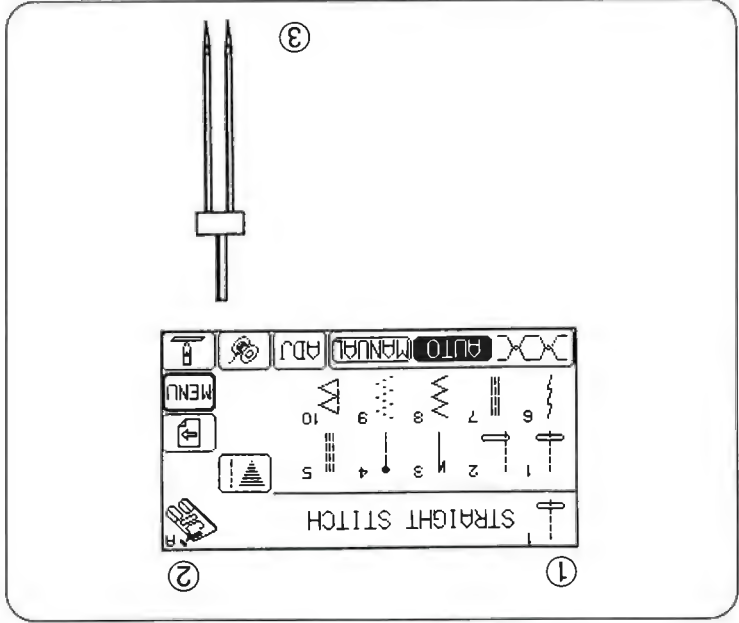
Twin Needle Hem

A twin needle hem is quick and easy, especially useful for very stretchy fabrics. Be sure to use a stretch twin needle for knit fabrics.

Turn off the power switch and insert a twin needle. Insert the additional spool pin and place the spool pin felt and second spool on it. See page 15.

Use the center needle position.

① Straight stitch
② A: Metal foot
③ Twin needle (stretch twin needle for knits)



Threading the Machine

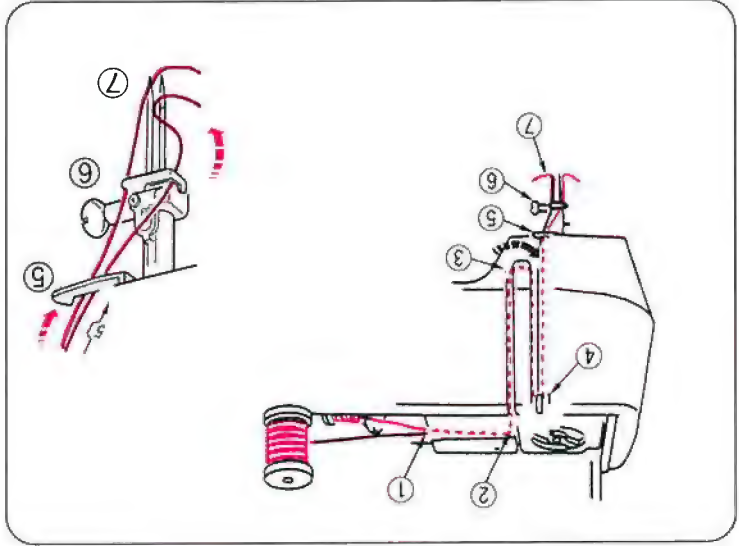
①-④ Thread 1 through 4 in the same manner as single thread. See page 17.

⑤ Draw the threads down and slide them through the right side of the lower thread guide.

⑥ Slide one of the threads through the needle bar thread guide on the left and through the other one on the right.

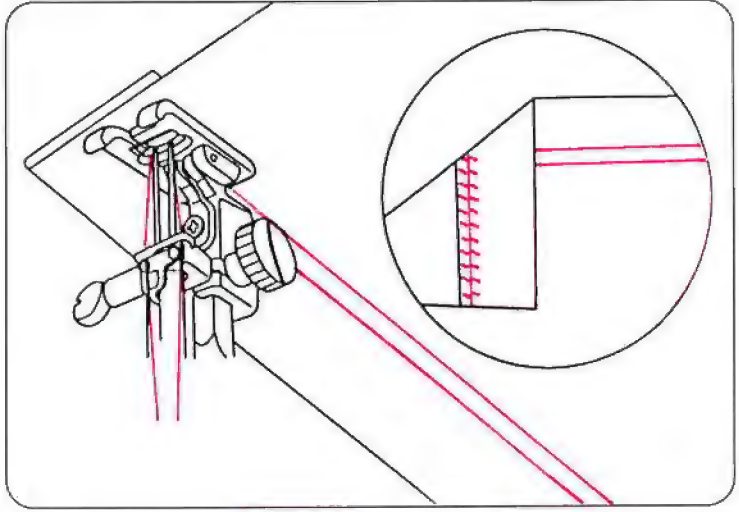
⑦ Thread the needles from front to back.

- The needle threader cannot be used with a twin needle.


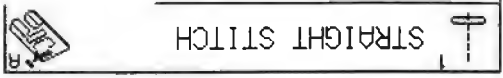



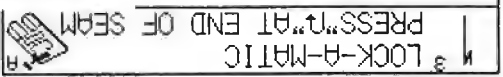

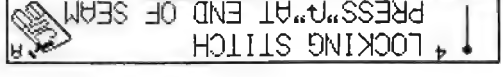



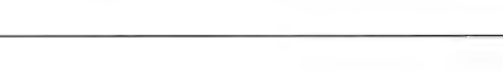


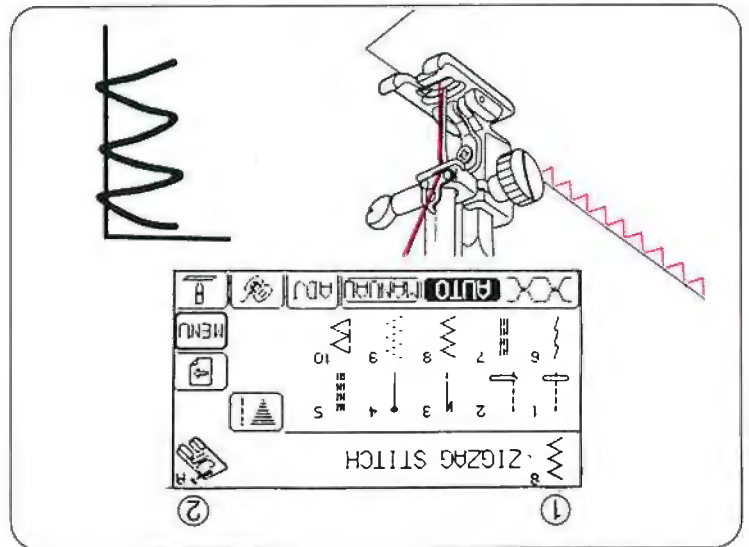
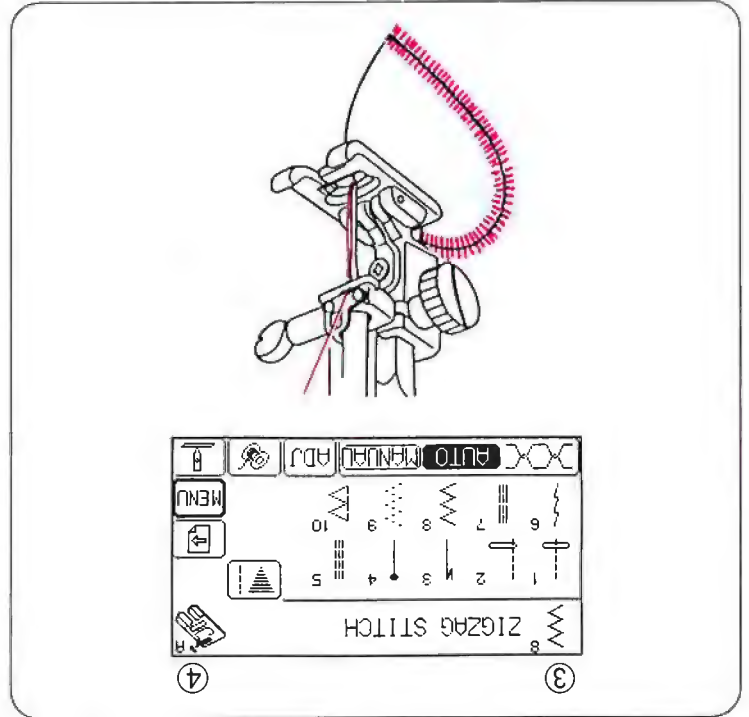
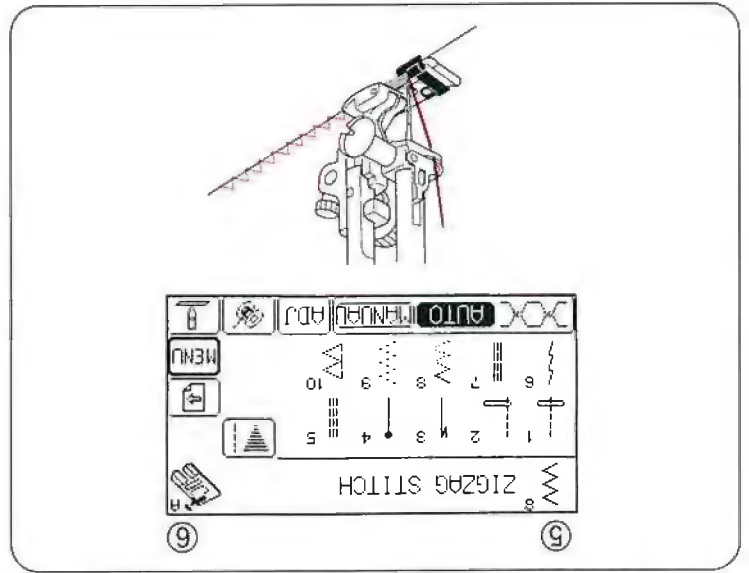
Fold the hem up desired amount and topstitch with the twin needle. Carefully trim away excess fabric using sharp scissors. This is an excellent hemming method for knit fabrics because the bobbin thread zigzags, allowing the hem to stretch with the fabric.

Remove twin needle. Set up machine for single needle sewing.



Straight Stitches (Variations)

Needle Position	Computer Display Screen	Purpose
Center 		This stitch can be used for sewing regular seams, zippers, pintucking and rolled hems.
Left 		This stitch can be used for regular seams, zippers, topstitching, etc.
Left 		The machine will sew four stitches forward, four stitches in reverse, then reach the end edge of the fabric, press the reverse key. The machine will sew four reverse stitches, four forward stitches, then automatically stop.
Left 		Lower the needle close to the front edge of the fabric. The machine will sew several locking stitches in place and continue sewing forward. When you reach the end edge of the fabric, press the reverse key. The machine will sew several locking stitches in place, then automatically stop.
Left 		This strong, durable stitch is recommended where both elasticity and strength are needed to ensure comfort and durability. Use it to reinforce areas such as crotch and armhole seams. It adds extra strength when constructing items such as backpacks. It is wonderful for topstitching suits, blazers, jumpers and denim outfits.
Center 		This stitch is a narrow stretch stitch designed to eliminate puckering on knit fabrics and bias seams, while permitting the seam to be pressed completely flat. The stitch can also be used to simulate neously seam and overcast when sewing on tricot and chiffons for a narrow, almost invisible seam or seam finish.



Whip and Roll Hem

This technique produces a beautiful edge on ruffles and hems. Whip and roll is commonly used in heirloom sewing.

Change stitch width to 3.5 and stitch length to 0.8.

The fabric edge must be clean. Lay the fabric edge in the center of the foot. The zigzag will catch the edge on the left and clear the raw edge on the right, rolling the fabric.

- ① Zigzag stitch
② **Substitute** F: Satin stitch foot
Instead of A: Metal foot

Applique Preparation

- Press fusible webbing to the wrong side of a lightweight fabric.
- Cut out design shape. Fuse design to main fabric.
- Sew design to fabric with the needle swinging off the applique.

- ③ Zigzag stitch
④ **Substitute** F: Satin stitch foot
Instead of A: Metal foot


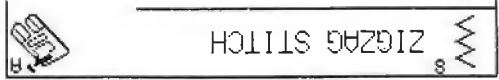

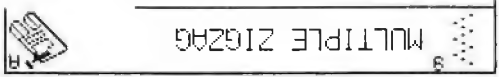

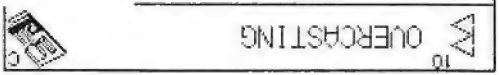

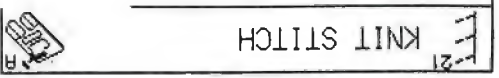




Zigzag Overcast

- ⑤ Zigzag stitch
⑥ **Substitute** C: Overcast foot
Instead of A: Metal foot

This stitch can be used on most woven fabrics. It is the fastest way to finish an edge. The brush on the foot ensures the thread lies flat with no puckering.

* Do not change the stitch width when using overcast foot C.

Place the fabric edge next to the foot black guide. Sew.

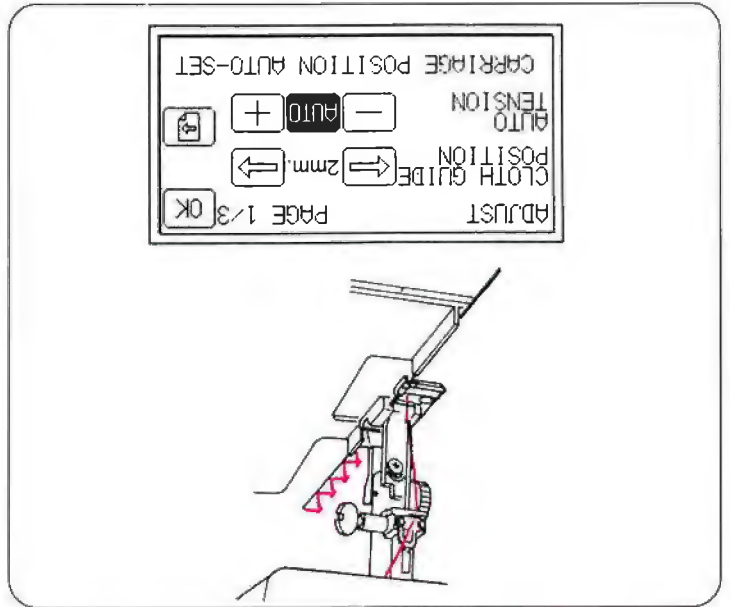
Purpose	Stitch	Computer Display Screen
The zigzag stitch is used to finish raw edges, roll hems, satin stitch appliques and create beautiful monograms.		
The multiple zigzag stitch is used to finish seam allowances on synthetics and other fabrics that tend to pucker. The stitch is excellent for darning and mending tears in fabric. Sew next to fabric edge and hand trim away excess seam allowance.		
The overcast stitch can be used to simultaneously stitch and overcast seams in one step. Use this stitch when you do not need to press seams open. Test the stitch on the fabric before sewing project.		
The knit stitch is recommended for sewing such fabrics as swimwear and stretch velour as it provides the greatest amount of elasticity and strength.		
The double overedge stitch is an excellent stitch for fabrics that tend to fray extensively, such as linens and gabardines. Two rows of zigzag stitches are simultaneously sewn over the edge.		
This stitch finishes the edges of your seams similar to a commercial overlocking machine for a professional look.		

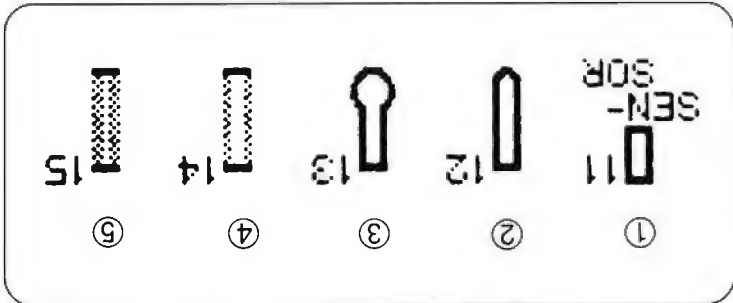
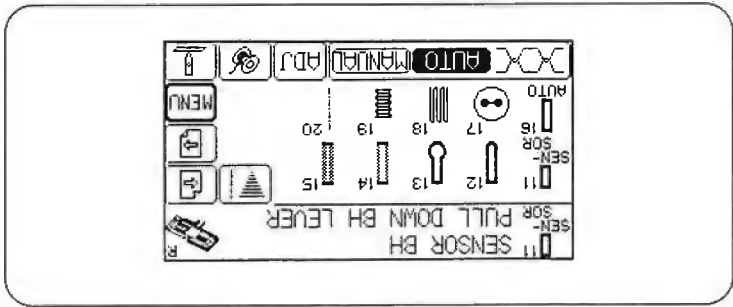
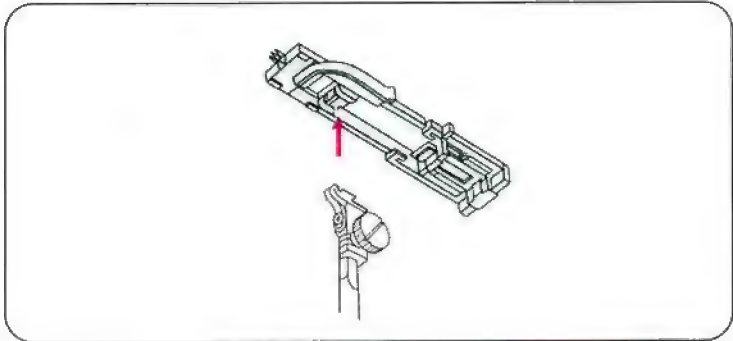
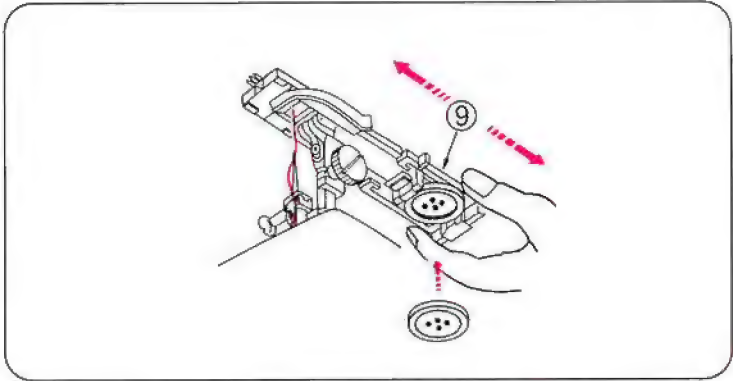
Overcasting with Cloth Guide

Attach cloth guide. See page 25.


- ① Select stitch 10 and attach overcasting foot M. (Press the **ADJ** key and set the cloth guide distance 2 mm (1/16") by pressing the **⇒** key.)
- ② Start sewing, feeding the fabric next to the fabric guide.
- ③ To return the cloth guide to its original position, keep pressing the **⇐** key until the **⇐** key is indicated.

Press the **OK** key.





Sensor Buttonholes

Press the  key.

All buttonholes should use interfacing suitable for the fabric weight. This is especially important when sewing on stretch fabrics. There are five variations of sensor buttonholes:

① **Classic Buttonhole**
For buttonholes on shirts and blouses

② **Rounded Buttonhole**
For buttonholes on fine fabrics

③ **Keyhole Buttonhole**
For buttonholes on jackets

④ **Knit Buttonhole**
For knit fabrics

⑤ **Stretch Knit Buttonhole**
For stretch fabrics.

Test sew the buttonhole on a sample swatch of the same fabric. Include the interfacing and any seam allowances that will be in the actual garment. This is very important to ensure the buttonhole style and fabric are compatible.

Press the key to select a buttonhole style. After the buttonhole width to match the fabric and thread. See page 42.

Raise the needle and presser foot.

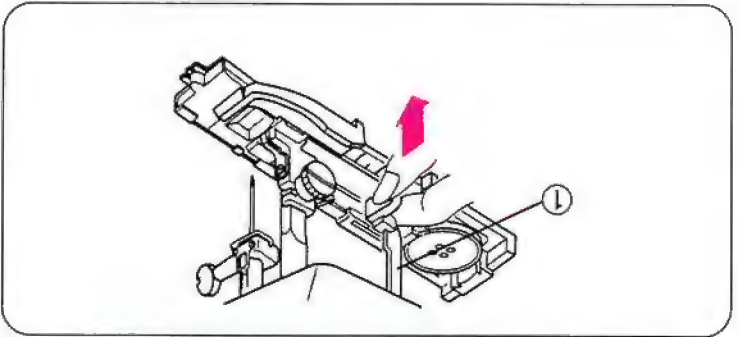
Attach the automatic buttonhole foot R. Make sure the button opening is at the back of the foot when it is attached.

Extend the buttonholder to the back and place the button in it. Push the holder together tightly around the button.
The size of the buttonhole is automatically set by placing the button in the automatic buttonhole foot. The buttonholder on the foot adjusts for a button up to 2.5 cm (1") in diameter.

⑥ **Buttonholder**

Sensor Buttonholes (cont'd)

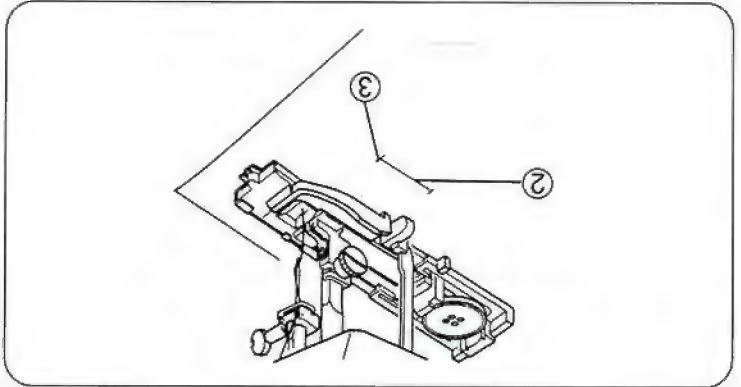
- ① Buttonhole lever
- Pull the buttonhole lever down as far as it will go.



Place both threads to the left under the foot. Insert the garment under the foot and lower the needle at the starting point. Then lower the automatic buttonhole foot.

- ② Mark buttonhole placement
- ③ Starting point

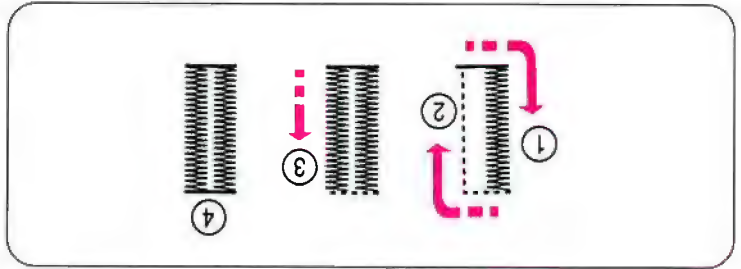
Press the foot control until the machine completes the buttonhole and stops by itself.



#11 Classic Buttonhole

The buttonhole will automatically sew:

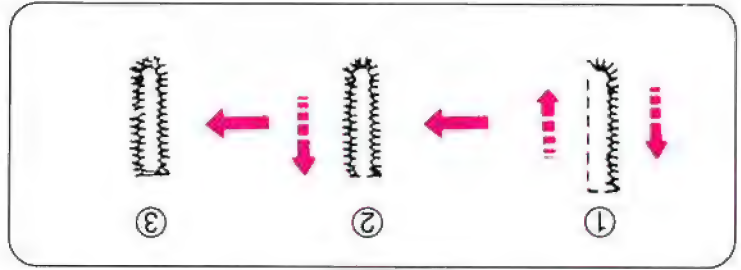
- ① the front backstitch and zigzag on left side
- ② straight stitch on right side to front backstitch
- ③ zigzag on right side
- ④ back backstitch and stop



#12 Rounded Buttonhole

The buttonhole will automatically sew:

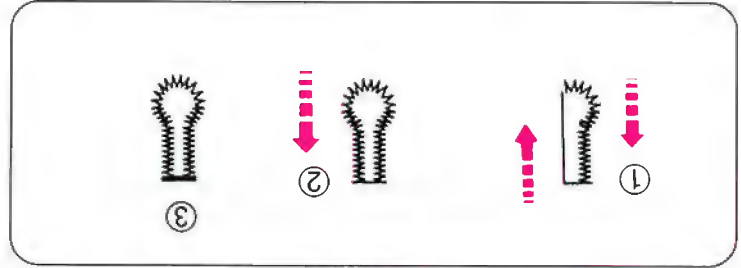
- ① the front left half of rounded end, zigzag on left side and straight stitch on right side to front
- ② front right half of rounded end and zigzag on right side
- ③ back backstitch and stop

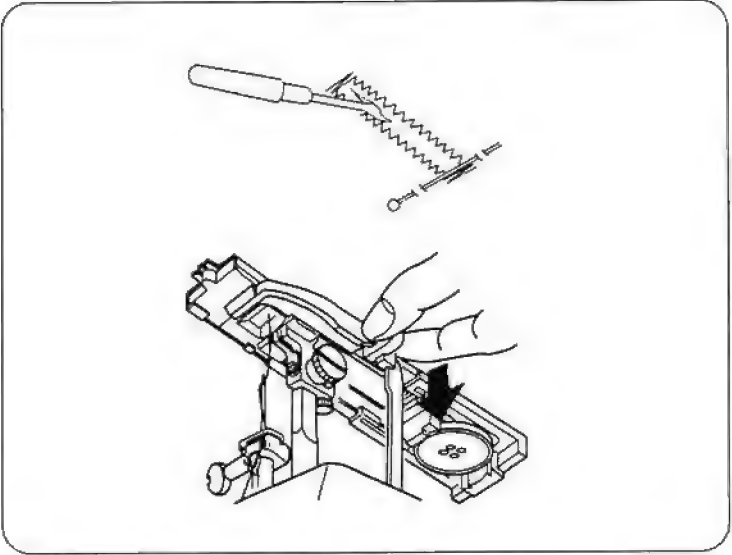


#13 Keyhole Buttonhole

The buttonhole will automatically sew:

- ① the front left half of keyhole, zigzag on left side and straight stitch on right side to front
- ② front right half of keyhole and zigzag on right side
- ③ back backstitch and stop

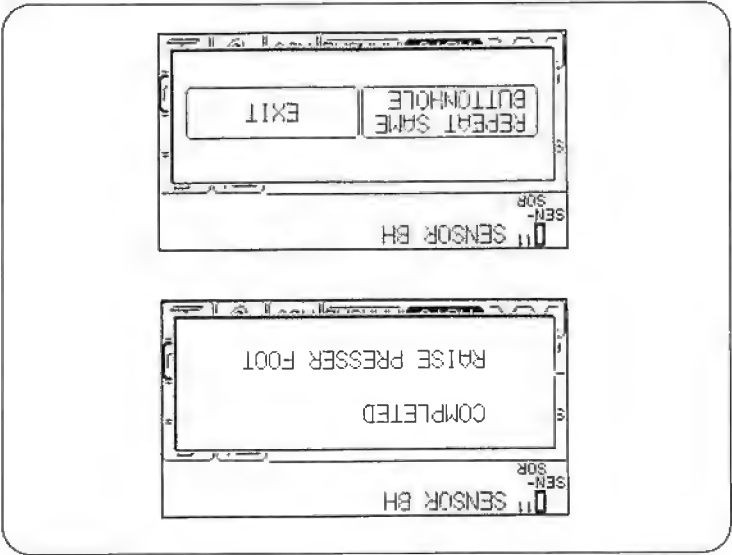




Press the **REPEAT SAME BUTTONHOLE** key to sew another buttonhole or to start from the beginning. Sew.

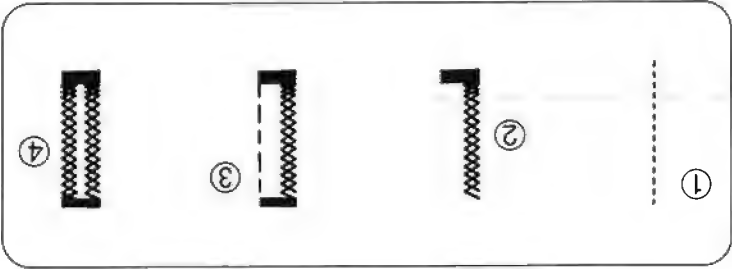
When buttonhole sewing is finished, push the buttonhole lever upward as far as it will go.

To cut the buttonhole open, place a pin just inside the bartack (to prevent accidentally cutting bartack) and use a seam ripper.



The machine signals you when the buttonhole is finished. The display message will read "Completed" and "Raise Presser Foot". (Buttonholes #14 and #15 will display message "Completed".)

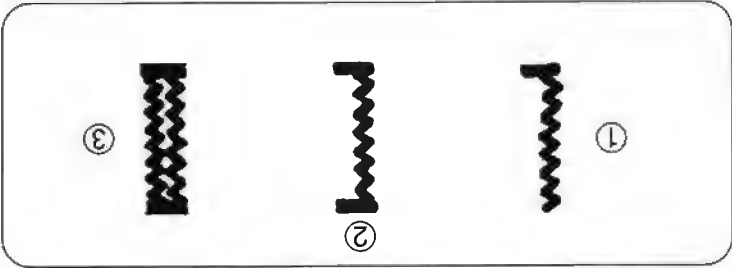
Raise the presser foot and the display message "Repeat Same Buttonhole" will appear. (Buttonholes #14 and #15 will display no message.)



The buttonhole will automatically sew:

- ① straight stitch on left side backwards
- ② cross stitch forward on left side and front bartack
- ③ straight stitch on right side backwards and back
- ④ cross stitch forward on right side and stop

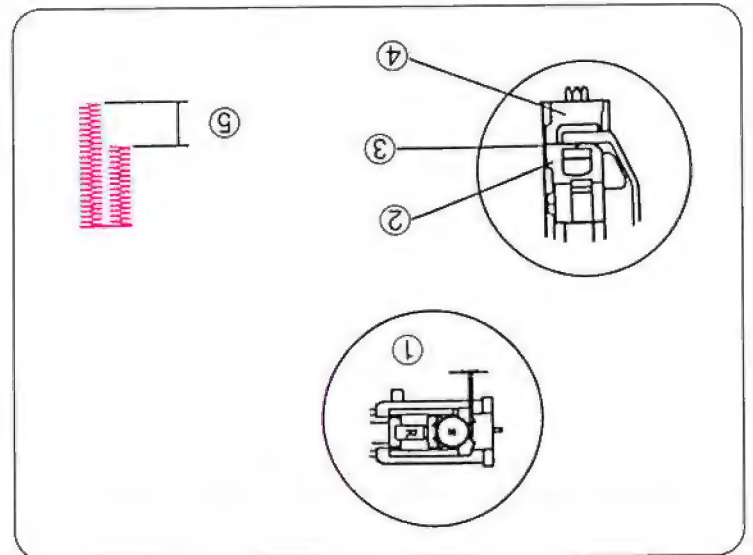
#15 Stretch Buttonhole



The buttonhole will automatically sew:

- ① front bartack and triple zigzag on left side
- ② back bartack
- ③ triple zigzag on right side and stop

Sensor Buttonholes (cont'd) #14 Knit Buttonhole



Sensor Buttonhole (cont'd)

If the button is extremely thick and difficult to fit through the test buttonhole, you can lengthen the buttonhole by pulling back the buttonholder on the foot a little extra. The length of the buttonhole will increase by that same amount.

- ① Buttonholder
- ② Slider
- ③ There should be no gap
- ④ Spring holder
- ⑤ Incorrect buttonhole

Make sure there is no gap between the slider and spring holder. If there is a gap, the sides of the buttonhole will be different lengths (⑤).

How to Alter Buttonhole Stitch Width and Length

Press the key.

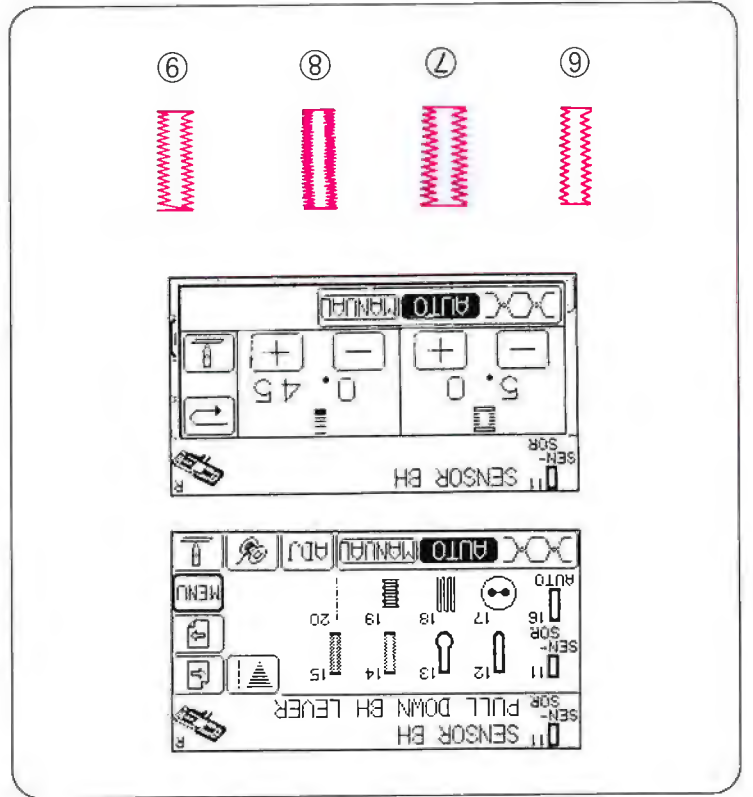
The pre-programmed stitch settings are shown on the screen.

Press the or key to alter the buttonhole.

- ⑥ Narrow width
- ⑦ Wider width
- ⑧ Shorter stitch
- ⑨ Longer stitch

Adjust stitch length to correlate with fabric and thread weight. Use a short stitch length for fine fabric and thread; use a long stitch length for heavy fabric and thread.

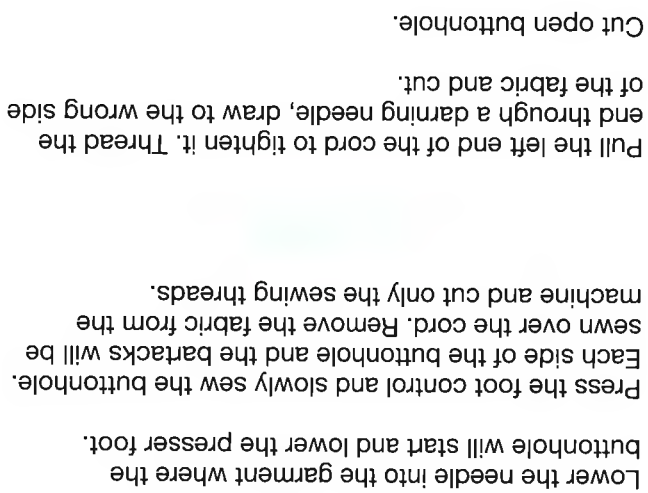
Press the key.



- Sew a corded buttonhole using the same procedure described on pages 39-41 for a classic buttonhole style.
- Set the stitch width to match the thickness of the cording.



① R: Automatic buttonhole foot
② Spur



Automatic Buttonhole

All buttonholes should use interfacing suitable for the fabric weight. Test sew the buttonhole on a sample swatch of the same fabric. Include the interfacing and any seam allowances.

Raise the needle and presser foot. Attach the automatic buttonhole foot R. Extend the buttonholder completely open.

Mark buttonhole placement on garment. Place both threads to the left under the foot. Insert the garment under the foot and lower the needle at the starting point. Lower the foot.

Sew the left buttonhole side. Stop sewing when desired length is sewn.

Press the reverse key.

Sew the bartack and right buttonhole side. Stop sewing when the right side length is same as left side length.

Press the reverse key.

Sew the bartack and let the machine tie off the stitches and stop automatically.

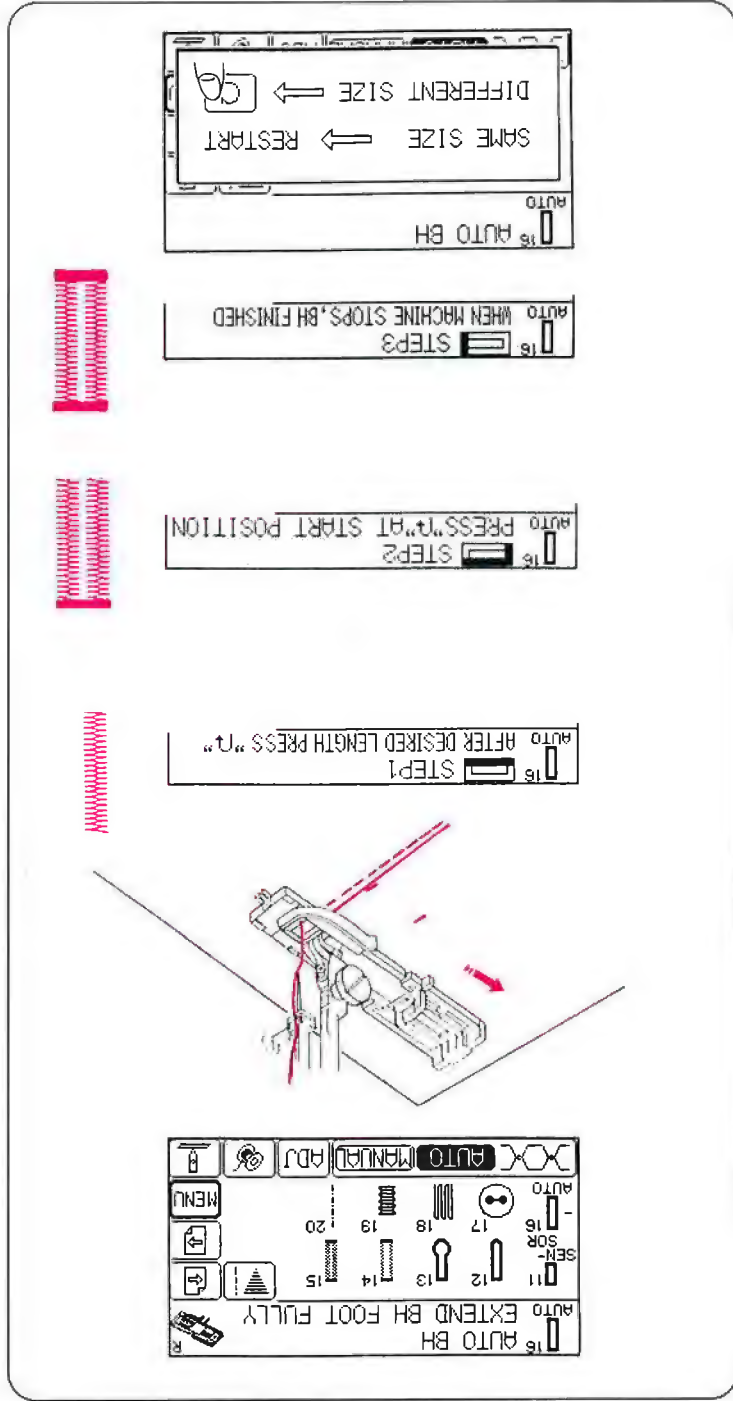
Sew another buttonhole; position the fabric and press foot control.

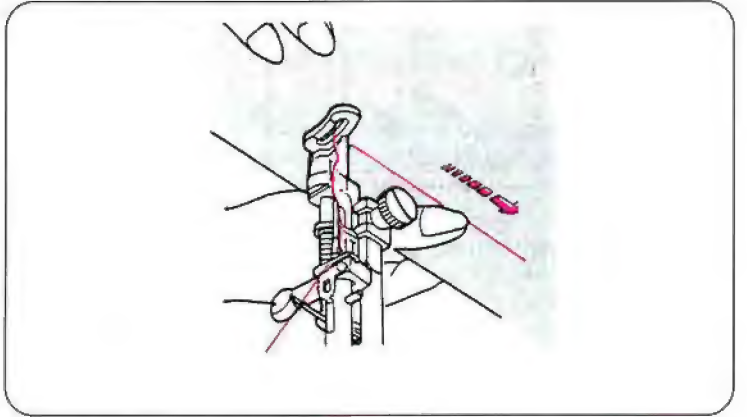
Fine Tuning Adjustment

Stitches on each side of the buttonhole should be equal.

① If the stitches on the left side are too far apart, turn the fine tuning dial towards the "+" sign.

② If the stitches on the left side are too close, turn the fine tuning dial towards the "-" sign.

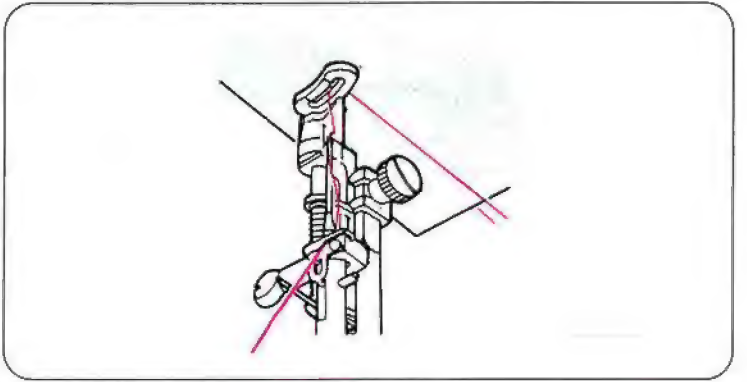




Hold the fabric firmly and move it to the area for the next stitch. Press the foot control.

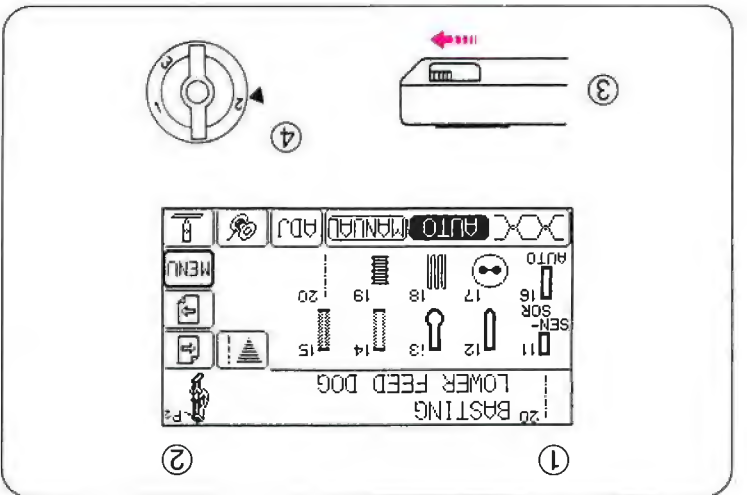
Continue the procedure until all basting is complete.

* When basting is complete, reset foot pressure dial, attach shank and raise the feed dog.



Pull needle and bobbin threads behind the presser foot. Place fabrics under foot and lower presser foot.

Press the foot control. The machine will sew one stitch and stop.




Basting

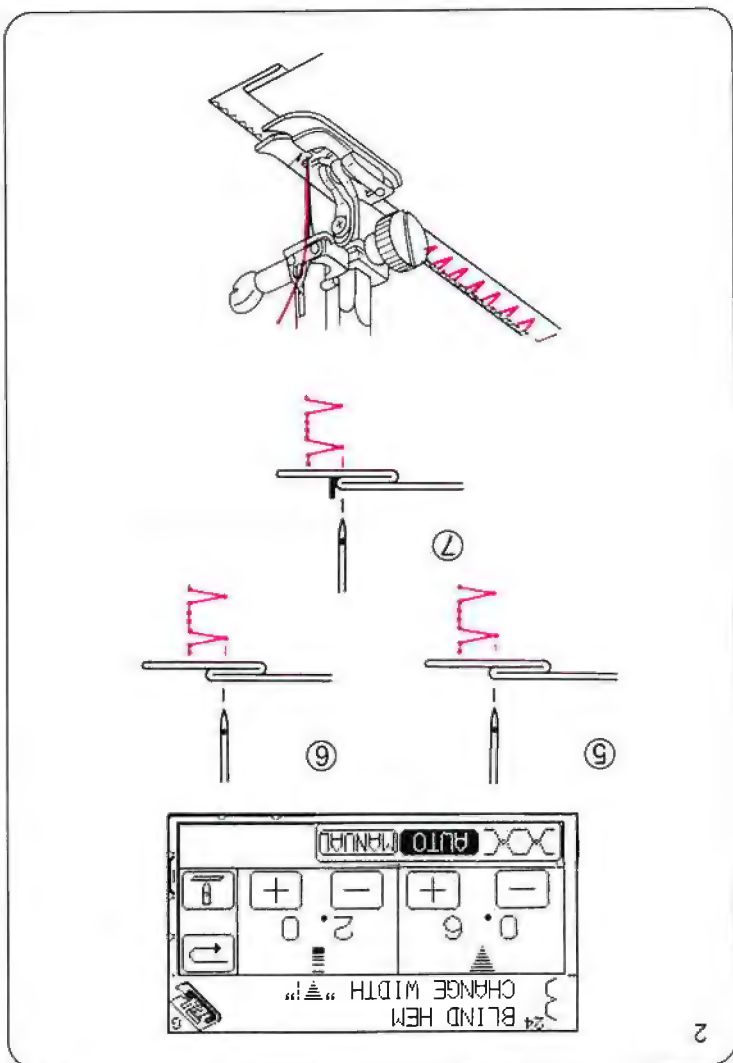
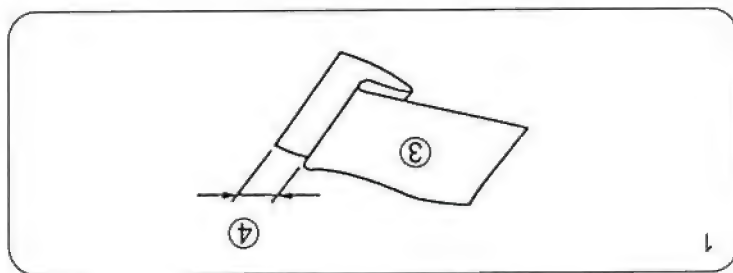
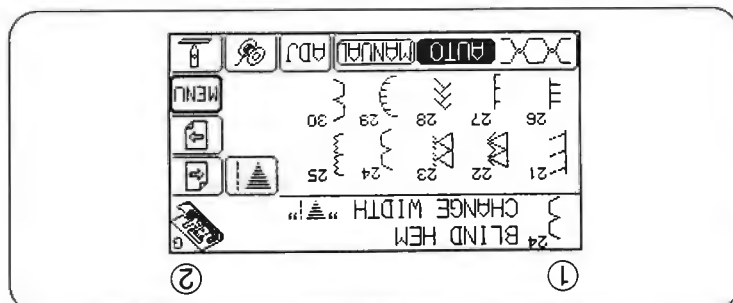
The basting stitch can be used to temporarily hold two or more layers of fabric together. Use a fine needle to avoid leaving permanent needle marks.



- ① Basting
- ② P2: Darning foot (see page 36)
- ③ Lower feed dog (see page 9)
- ④ Set foot pressure dial to 2 (see page 6)


Blind Hem Stitch

- Press the  key.
- ① Woven blind hem
② G: Blind hem foot
or
② Stretch blind hem

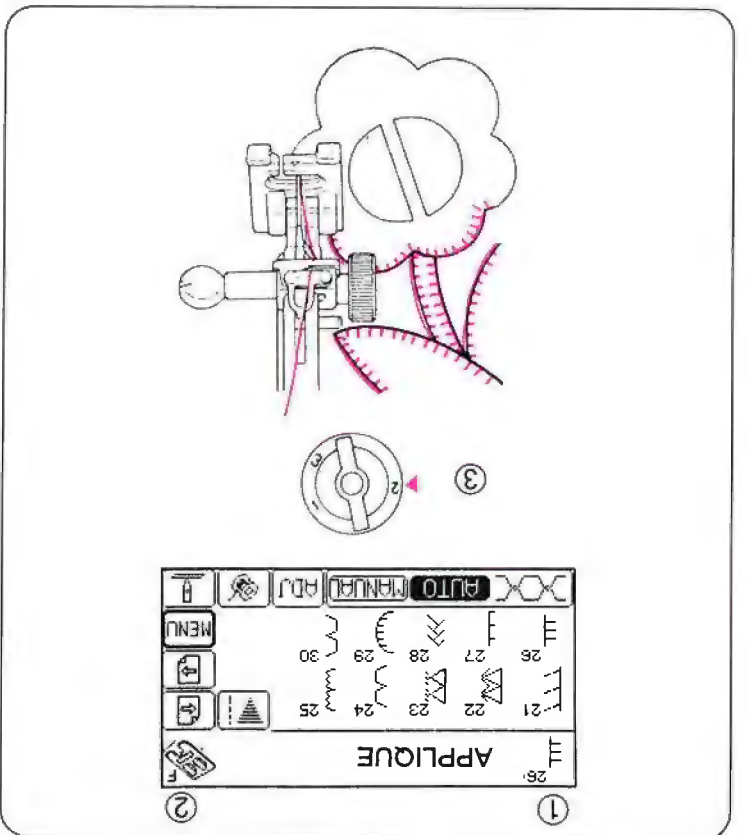
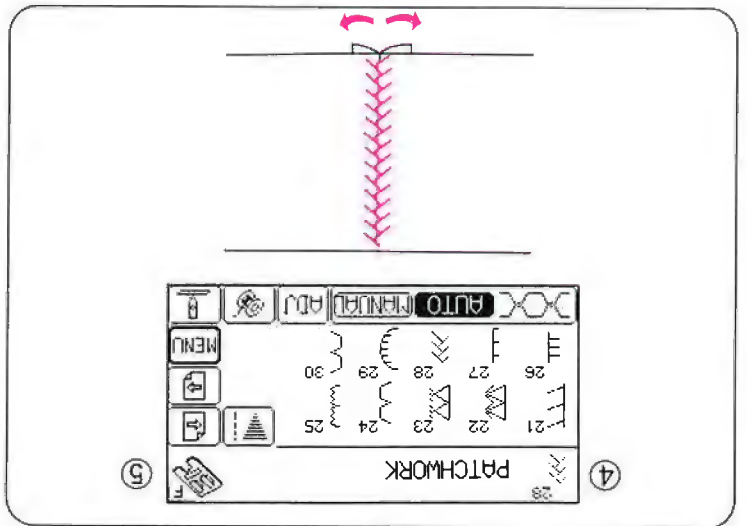
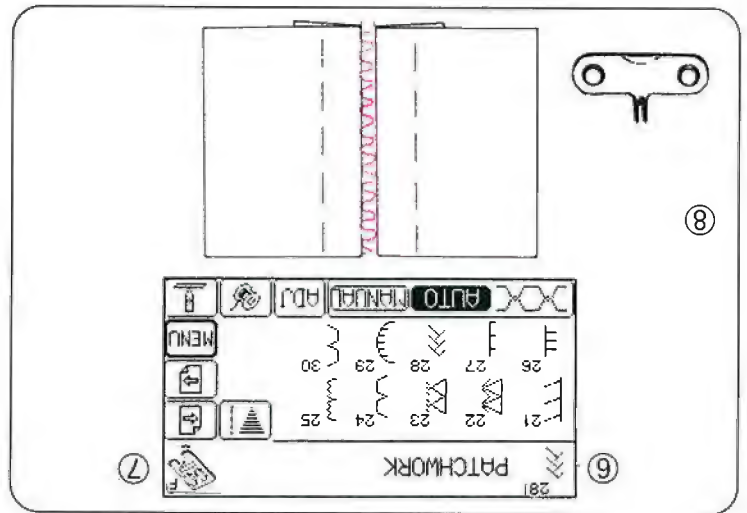
- 1 Fold up the hem allowance and press. Fold under the hem toward right side of garment. Leave a 6.5-10 mm (1/4" to 3/8") extension at the right.
- ③ Wrong side of fabric
④ 6.5 – 10 mm (1/4" to 3/8")



- ⑤ Move needle position right .
⑥ Move needle position left .
⑦ Correct fabric and needle position.

- 2 Position the fabric so the folded edge is to the left side of the guide. Lower the presser foot.
- Press the  key. Adjust the position of needle swing with the stitch width key. Make sure the needle catches only one or two fibers of the fold.

- Sew with the folded edge against the foot guide.
- * 0.6 on the computer display screen indicates the distance between the guide and needle.
- * **TIP:** Fold the fabric with only a 0.2 cm (1/8") extension. While sewing, the stitch will fall off the fabric and form a chain on the fabric edge.



Buttonhole Applique

Use fine cotton embroidery thread (50 weight or finer) and needle appropriate to fabric. You may need to set the foot pressure dial to 2.

In this type of applique, raw edges are folded under.

To prepare the raw edge, first cut the applique design out of paper.

Press a fusible webbing to the wrong side of the fabric, then cut the fabric slightly larger than the paper pattern.

Fold the fabric under to match paper pattern size and press only the edge to form a perfectly shaped design.

Press the applique in place and sew. Straight stitch edge is sewn next to the folded edge of the applique.

① Buttonhole applique stitch

② F: Satin stitch foot

* Use stitch 27 to achieve a variation.

Patchwork

Sew a straight stitch seam and press seam allowance open. Sew patchwork stitch on right side of garment centering it over the seam line.

④ Patchwork stitch

⑤ F: Satin stitch foot

Fagoting (Bridging)

Fagoting is a technique seen in heirloom sewing. Two folded edges are joined together by threads over an open area.

⑥ Patchwork stitch or

⑦ F: Satin stitch foot

⑧ Fagoting plate (optional accessory)

Remove the bobbin cover plate and attach the fagoting plate.

Fold and press under seam allowance to wrong side of fabric.

Place folded fabric right side up on both sides of the fagoting plate. Sew slowly, guiding the fabrics against the fagoting plate. Adjust stitch width so needle catches folded edges.

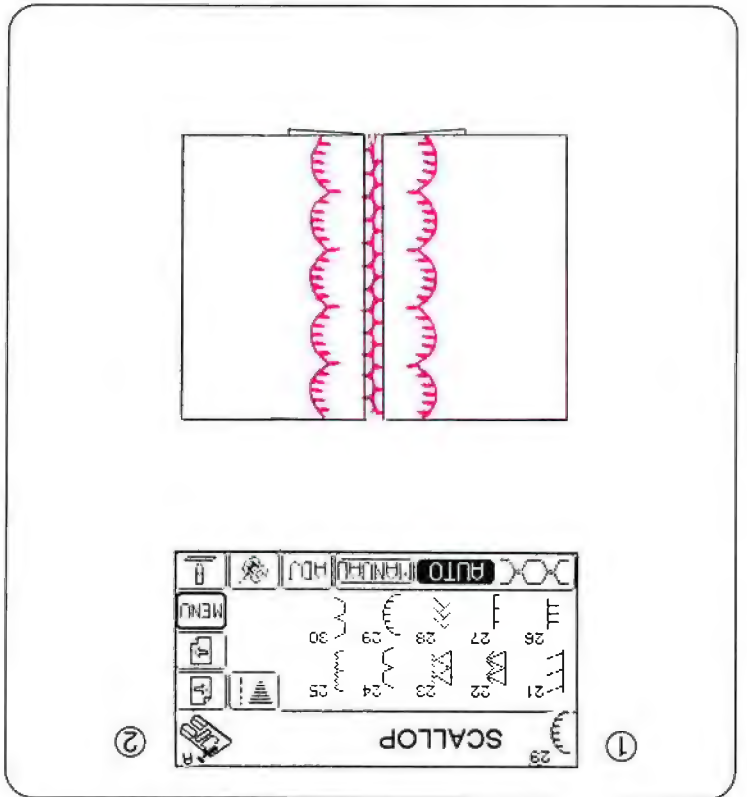
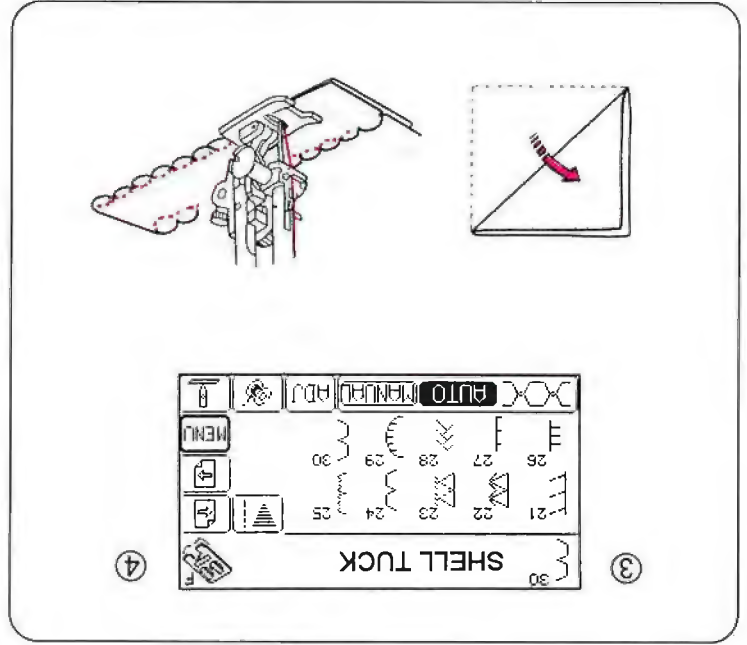
Shell Stitch

Use a lightweight fabric such as tricot. Fold and stitch on the bias. Set the stitch width and length as you desire. You may need to tighten the top thread slightly. Allow the needle to just clear the folded edge of the fabric when it swings off the fabric to the right. If you sew rows of shell stitches, space the rows at least 1.5 cm (5/8") apart.

You can sew shell stitches in any direction on knits or soft silky wovens.

- ③ Shell stitch
- ④ F: Satin stitch foot

Reset thread tension to "Auto" after sewing is complete.



Scallop Stitch

The scallop is a decorative stitch that is wonderful for enhancing the beauty of the fagoting technique. Sew the fagoting stitch. See page 51.



- ① Scallop or F: Satin stitch foot
- ② **Substitute** F: Satin stitch foot
- Instead of A:** Metal foot

Position the fagoting stitch off to the left side of the foot. Sew, using the edge of the foot against the fagoting as a guide.



Turn the fabric around and sew the other side using same method.

Smocking

Smocking is a delicate, decorative treatment on children's clothes or women's blouses. Choose a soft, lightweight fabric such as batiste, gingham or challis. Cut the fabric three times the finished width.





Press the  key twice. You will use straight stitch  and set stitch length at 4.5.

Sew rows of straight stitches approximately 1 cm (3/8") apart, across the area to be smocked. (A looser needle thread tension will make gathering easier.) Tie the threads along one edge. Pull the bobbin threads and distribute the gathers evenly. Secure the threads at the other end.

Press the  key three times. Select smocking stitch .

Reduce the tension and pressure if necessary and sew smocking stitch between the straight seams. Pull out the gathering stitches.







- ① Gathering lines – 1 cm (3/8") apart
- ② Smocking stitch, remove gathering

* Stitches , ,  or  may also be used.

Hemstitches

Hemstitching, also known as French hand sewing, was traditionally only a hand sewn art. There are several stitches to choose from that will add an "old world charm". Best results require the use of linen, cotton or a blend of linen/cotton.

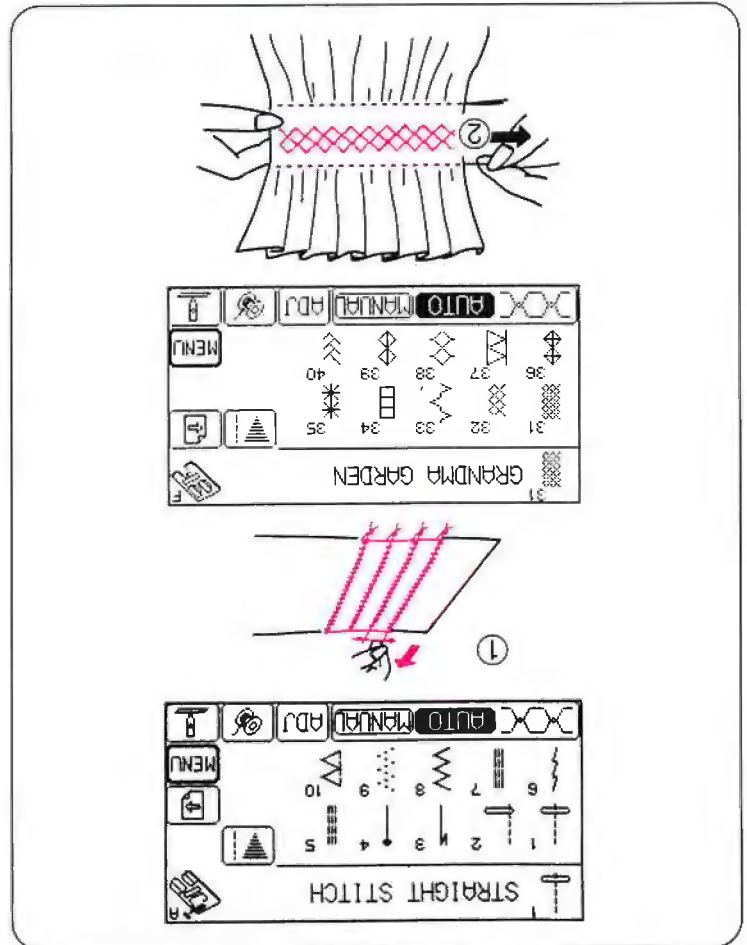
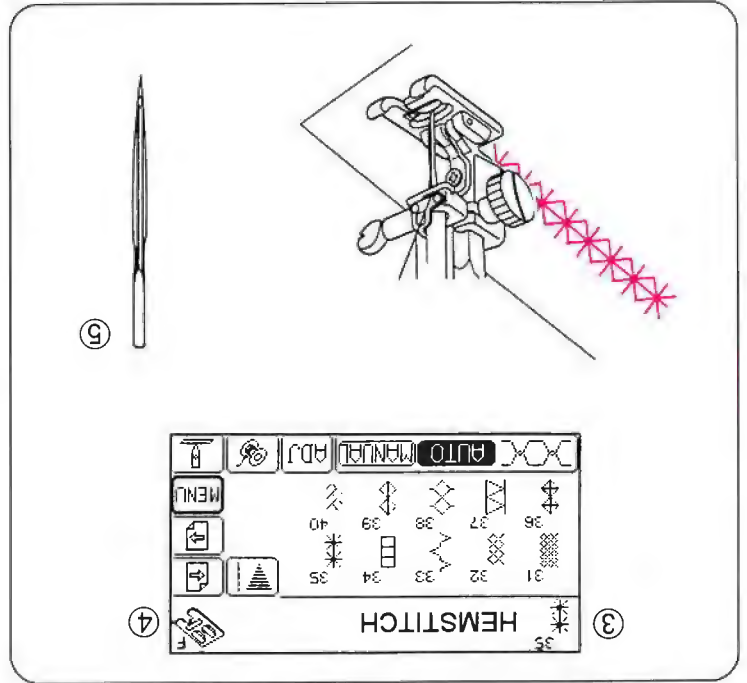
Thread machine, needle and bobbin with a fine cotton embroidery thread (50 weight or finer). Insert a universal needle size #110 or a wing needle. Use spray starch to stabilize fabric.

- ③      

- ④ F: Satin stitch foot
- ⑤ Wing needle

Draw design lines with a washable fabric marker. Sew slowly over design lines.

* Adjust fine tuning until needle precisely penetrates each repeat hole. See page 5.

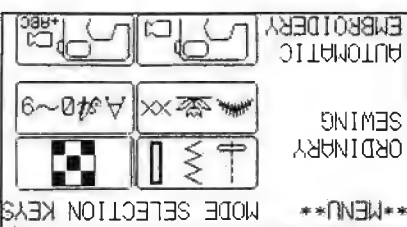


SECTION IV

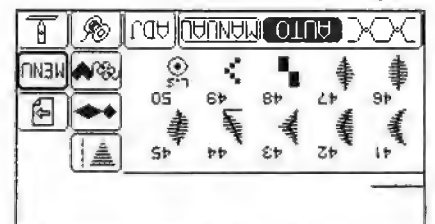
Decorative Mode

Press the **MENU** key to access the mode selection keys.

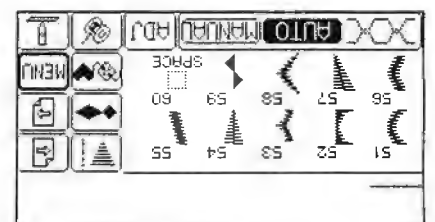
Press the key. Press the key. Press the key to change the computer display screen between the 11 different displays.



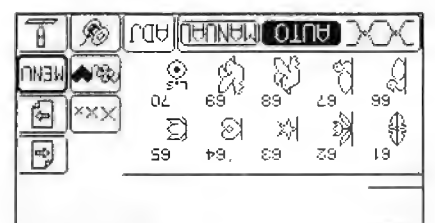
① Stitches 41 to 50



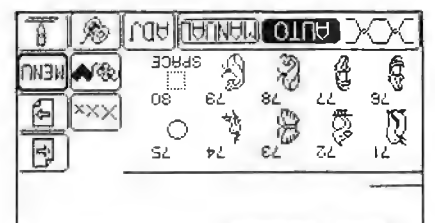
② Stitches 51 to 60



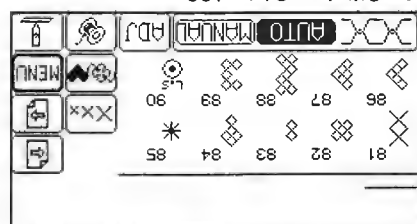
③ Stitches 61 to 70



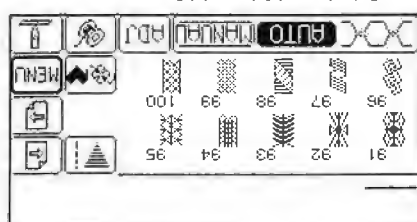
④ Stitches 71 to 80



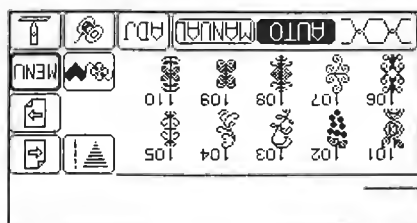
⑤ Stitches 81 to 90



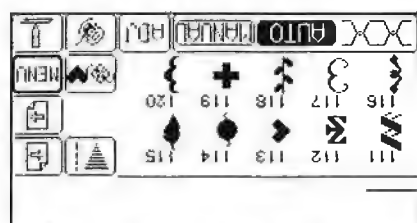
⑥ Stitches 91 to 100



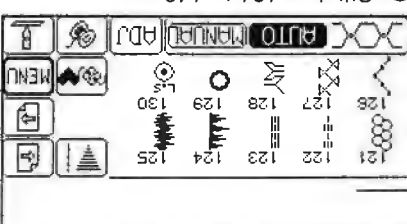
⑦ Stitches 101 to 110



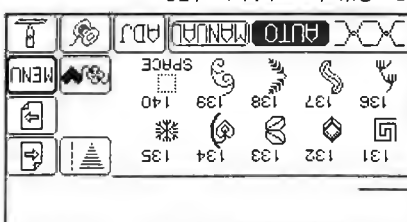
⑧ Stitches 111 to 120



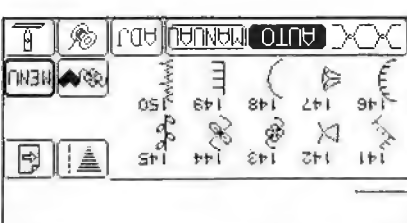
⑨ Stitches 121 to 130



⑩ Stitches 131 to 140



⑪ Stitches 141 to 150




How to Select a Stitch

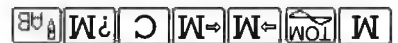
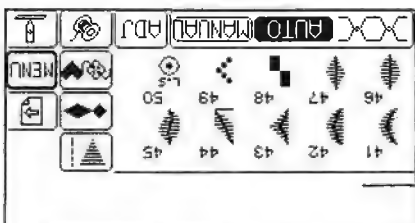
Select the stitch by touching the display key.

The stitch will appear in the upper left corner and a suggested foot in the upper right corner.


Combination Key

Decorative stitches may be combined to form beautiful borders and designs. (Maximum combined capacity is 50 stitches.)


Press the  key and these new keys will appear at the bottom of the computer display screen.




M Memory Key

Press the  key after selecting a stitch and the stitch will be memorized as many times as the key is pressed. When the key is pressed after selecting another stitch, that stitch will be memorized after the previously memorized stitch.


TOM Turn-over Memory Key

Press the  key after selecting a stitch to memorize and invert the stitch. The computer display screen will show the stitch in "mirror image".


M Store Key


The machine has separate memories for combination stitches. Press the  key to store the memorized stitches. The stitches will be stored for approximately 3 weeks with the power switched off.

M Recall Key


Press the  key to activate stored stitches.

C Clear Key


Press the  key while memorizing stitches and the last memorized stitch will be cleared (like a backspace).


Press the  key during memorized sewing and the entire sequence of memorized stitches is cleared.

?M Memory Check Key

Before sewing a long sequence of memorized stitches, it is advisable to check for programming errors. Press the  key and the entire memorized sequence will appear in the screen.


AB Beginning Key

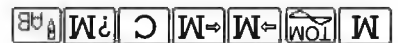
If you start sewing the memorized stitches and stop sewing before the sequence is complete, it is possible to sew from the beginning of the sequence. Press the  key.

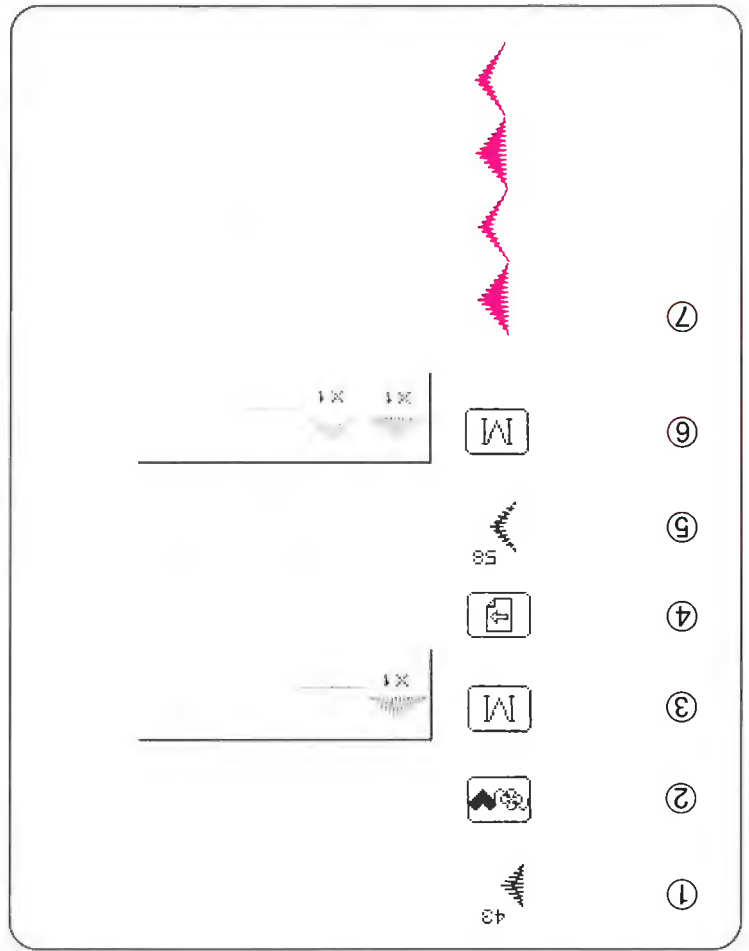
Press the  key again to show original display screen options.

Combination Key










Decorative stitches may be combined to form beautiful borders and designs. (Maximum combined capacity is 50 stitches.)

Press the  key and these new keys will appear at the bottom of the computer display screen.

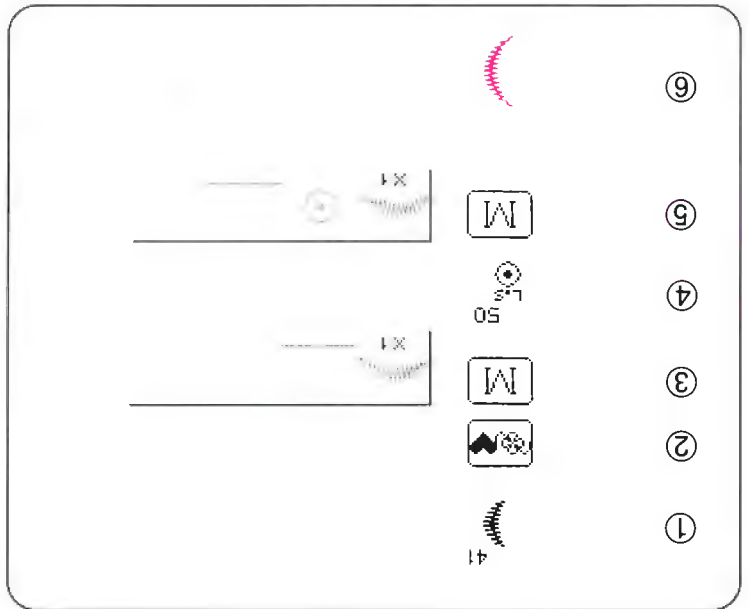












Combining Motifs

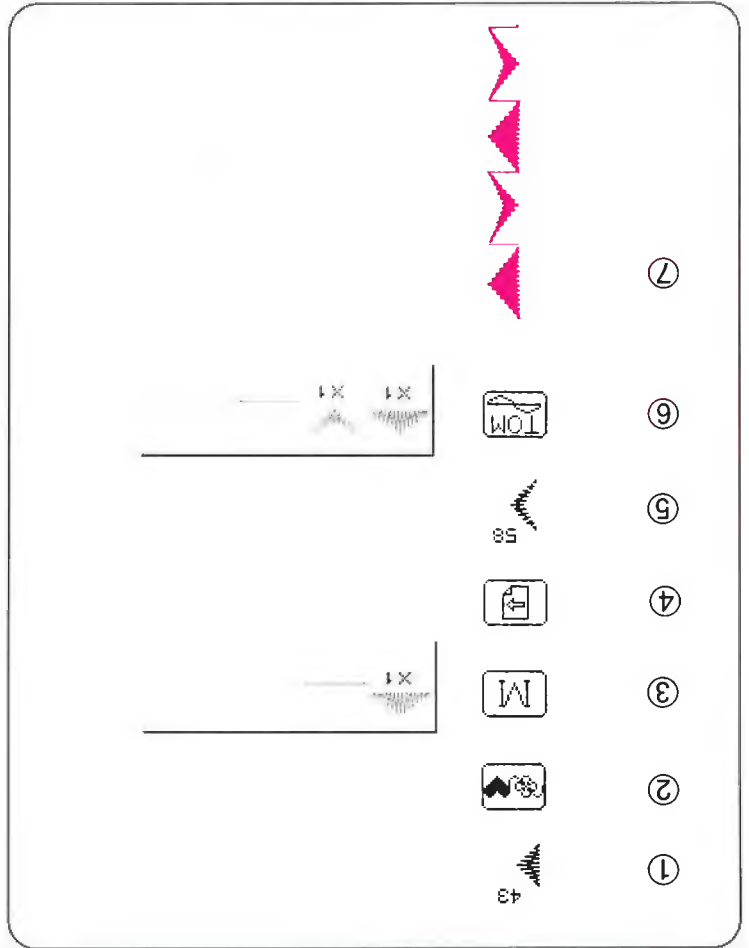
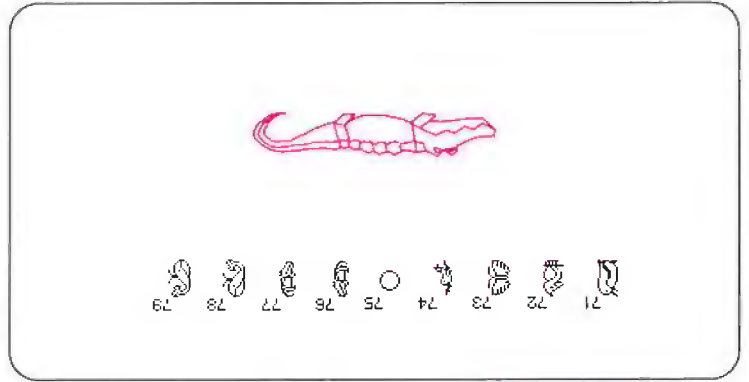
- ① Select stitch  43.
 - ② Press  key.
 - ③ Press  key to memorize stitch . (An auto-lock stitch is pre-programmed at the beginning of the stitch.) The cursor should be blinking after the .
 - ④ Press  key to move to next page.
 - ⑤ Select stitch  58.
 - ⑥ Press  key to memorize stitch  58.
 - ⑦ Place fabric and stabilizer under foot and press foot control to sew memorized motifs repeatedly.
- * Press the auto-lock key while sewing the last desired motif within the combined sequence. The machine will complete the motif, auto-lock and stop.

How to Program Decorative Stitches











Single Motifs

- ① Select stitch  .
 - ② Press  key.
 - ③ Press  key to memorize stitch  . (An auto-lock stitch is pre-programmed at the beginning of the stitch.) The cursor should be blinking after the  × 1
 - ④ Select stitch  .
 - ⑤ Press  key to memorize locking stitch  .
 - ⑥ Place fabric and stabilizer under foot and press foot control. Machine will auto-lock, sew motif, auto-lock and stop.
- * Single motifs may be sewn without being memorized. Begin sewing the motif and press the auto-lock key. The machine will complete the motif, auto-lock and stop.




Combining Motifs with Turn-over (Mirror Image)

- ① Select stitch  43.
- ② Press  key.
- ③ Press  key to memorize stitch  43. (An auto-lock stitch is pre-programmed at the beginning of the stitch.) The cursor should be blinking after the
- ④ Press  key to move to next page.
- ⑤ Select stitch  58.
- ⑥ Press  key to turn-over/memorize stitch  58.
- ⑦ Place fabric and stabilizer under foot and press foot control to sew new sequence.


Memory Lock Stitches

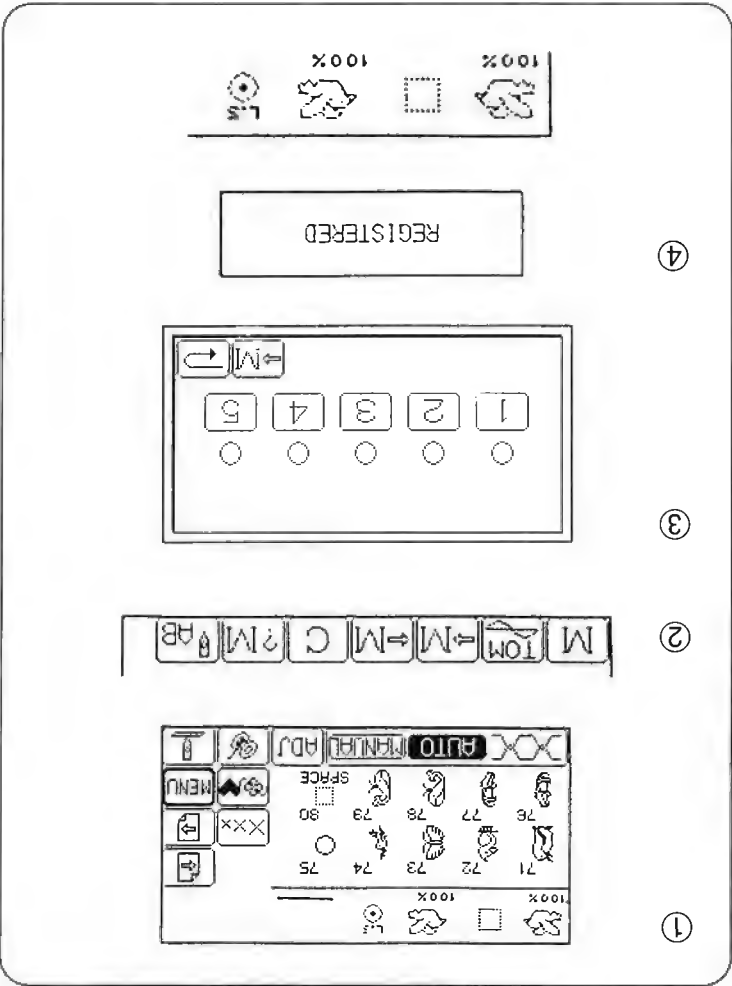
Stitches 71 through 79 are pre-programmed to auto-lock, sew the stitch, auto-lock and stop. There is no need to memorize the stitch or to press the auto-lock key.

Select stitch  76.

Place fabric and stabilizer under foot and press foot control to sew single crocodile.

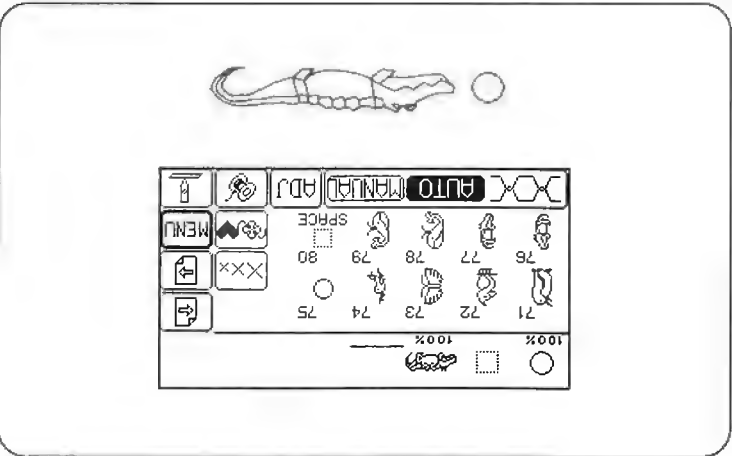
* Sew more than one crocodile by memorizing them.

Press the  key to vary the crocodile size.



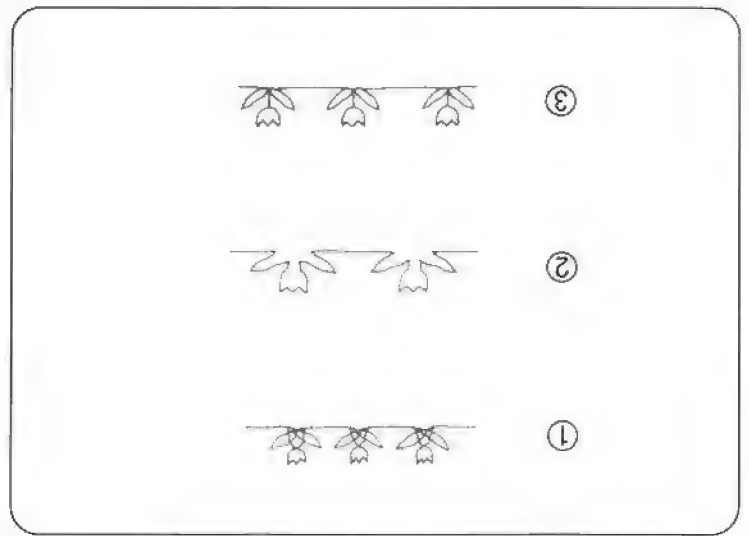
- ① Memorize stitches
- ② Press **M** key.
- ③ The display screen will change. Press **1** key for the location to store the stitches; press **M** key.
- ④ "Registered" will appear in the screen for two seconds. The memorized/stored stitches will appear.
- * If you store a new combination in an already occupied location, the old combination will be deleted.

Storing Memorized Stitches

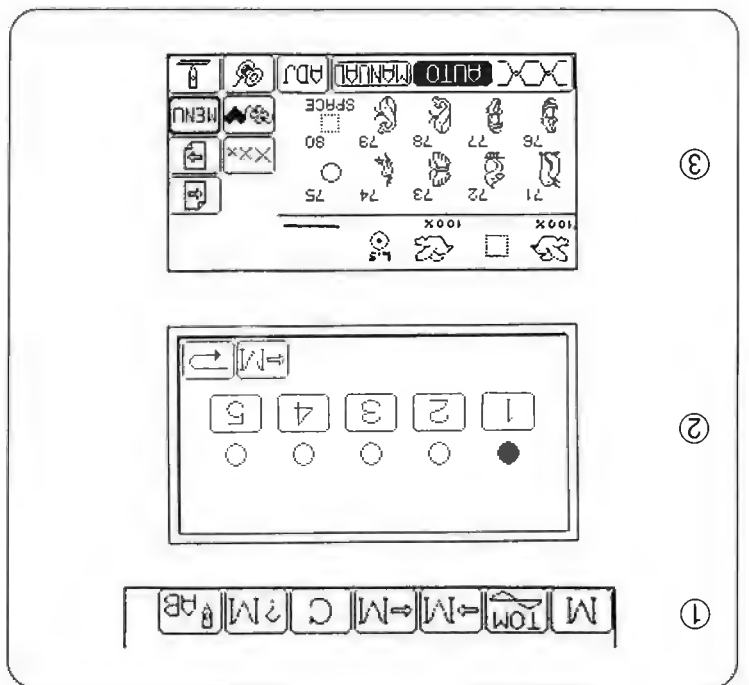


Adding Space Between Memorized Stitches

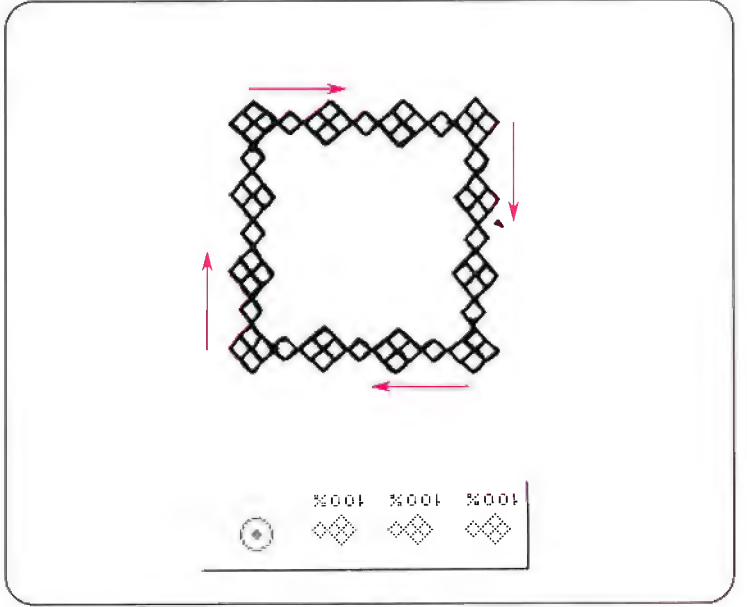
- When sewing two different stitches together, they may overlap or need more space between them.
- Memorize stitches
- Sew sample.
- * Cut connecting threads with curved scissors which allow you to lift up the thread and cut it close to the stitching.





- Fine Tuning Adjustment**
- If the designs are uneven and distorted, adjust them with the fine tuning dial. See page 5.
- ① When design is overlapped, turn the fine tuning dial towards the "+" sign.
 - ② When design is drawn out, turn the fine tuning dial towards the "-" sign.
 - ③ Fine tuning correct





- Recalling Stored Stitches**
- To recall stitches stored in location number 1.
- ① Press **M** key.
 - ② The display screen will change.
 - ③ The computer display screen will display the stored sequence after two seconds.
- (The "●" indicates that the sequence is stored.)
- Press **1** key.
- Press **M** key.

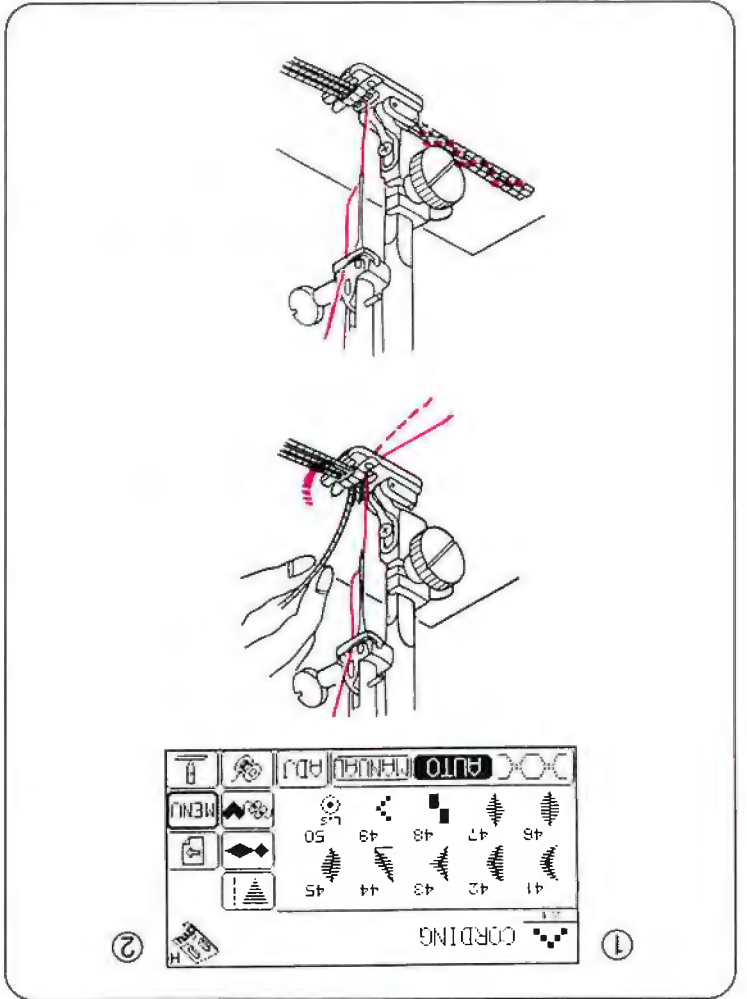


Grandma Garden

Select stitch  and press the **M** key three times. Select stitch  (locking stitch) and press the **M** key once.

Place fabric and stabilizer under presser foot. Lower the needle at the starting point and sew until the machine stops automatically. Lower the needle at the end point and turn the fabric 90 degrees. Sew the second row until the machine stops automatically. Complete the square pattern, repeating the same procedure.

* Stitches  or  may also be used.



Triple Cording

Sew over three strands of cording to create unique border trims. Pearl cotton, knitting yarn, embroidery floss, lace thread, fine wool or lily yarn may be used as cording.


①  Cording stitch

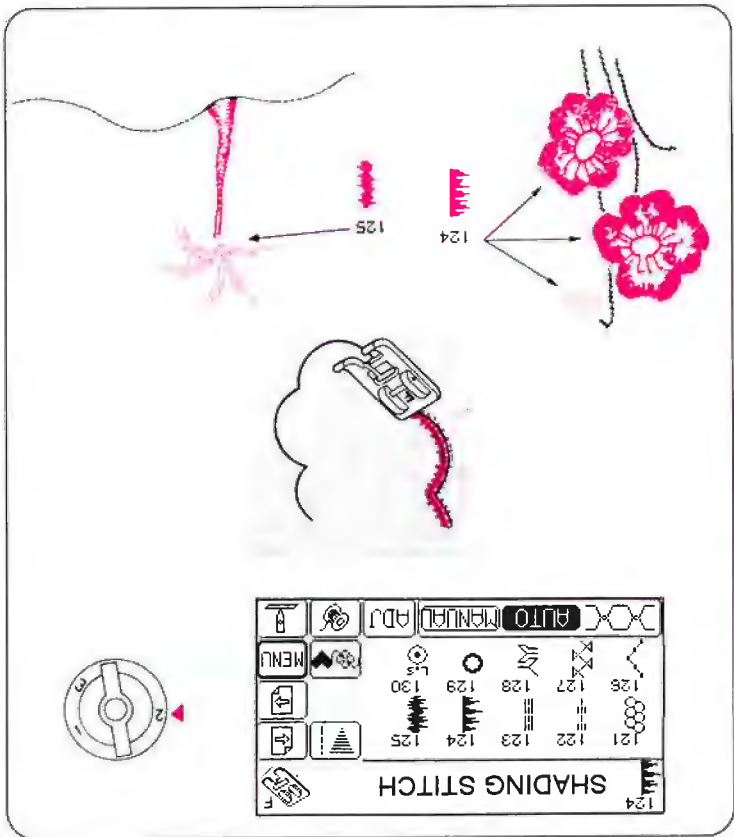
② H: Multi-cord foot

Mark the design on the right side of the fabric.

Slide the sewing threads to the left and insert three strands of cording into the slots of foot H with 10 cm (4") extending behind the foot. (The slots on foot H will hold the lengths of cording in place while the stitches form over the cording.)

Stitch slowly and smoothly turning the fabric as you sew while guiding the cording over the design line.

* Sew a single strand of cord using stitch . Change the width to 3.0. Insert the single strand of cording in the center groove of foot H.



Draw the design on the right side of the fabric. Place a stabilizer or iron-on interfacing beneath the fabric for support where necessary.

Use the automatic setting or manually adjust the stitch length and width to achieve the desired effect. Reduce the pressure to facilitate sewing curved areas. You may need to pivot on sharp curves.

A second row in the same or varied thread color can be sewn inside the first row for a more pronounced outline.

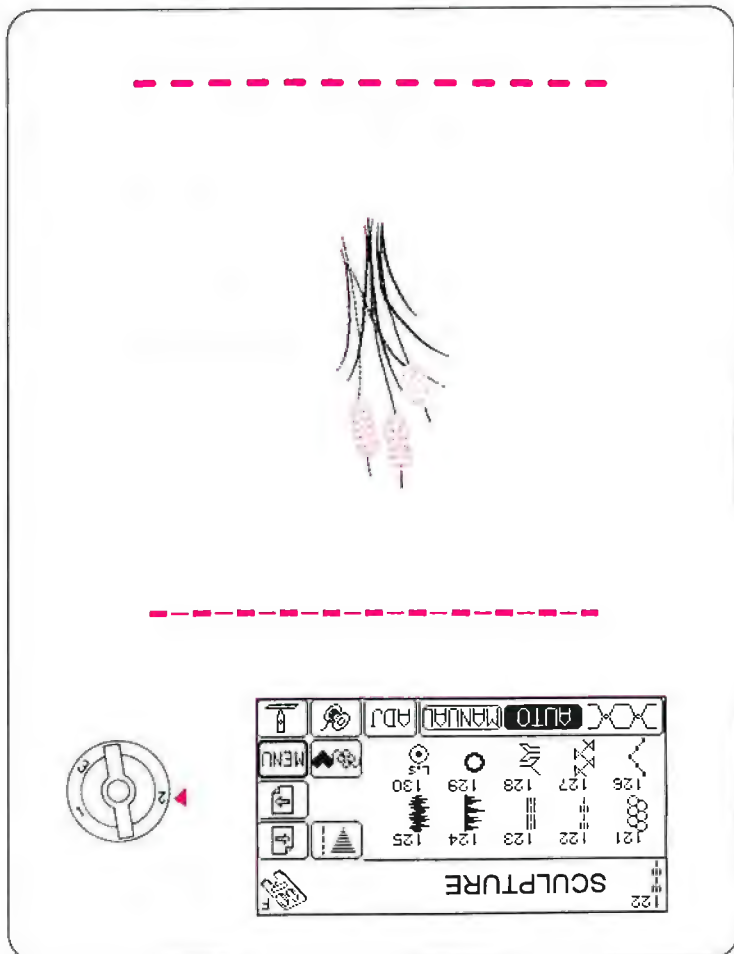
Reset foot pressure dial to 3 after shading stitches are sewn.

Shading Stitches

Shading stitches may be used for quick and neat outline designs. Use them to enhance appliques and create your own machine embroidered motifs.

Select stitch 124 or 125.

Set foot pressure dial to 2.



Sculpture Stitch (Quilt Stitch)

The sculpture stitch adds a three dimensional effect when outlining designs for elegant motifs on clothing, table linens and crafts.

The sculptured look is formed by five back and forth stitches and one forward stitch.

Select stitch 122. Set foot pressure dial to 2.

Trace your design on the right side of the fabric. Place a stabilizer underneath for extra support on lightweight fabrics.


Stitch slowly by guiding foot F over the traced line, pivoting at corners.


Secure the threads with the locking stitch.

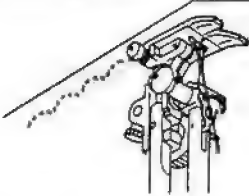
* You may want to reduce the pressure when sewing curves.

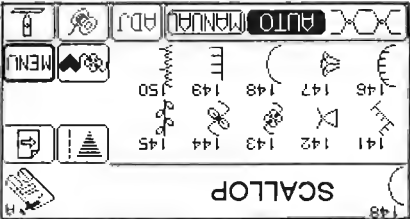
• Quilt Stitch

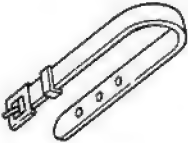
You can easily duplicate hand quilted stitches by using monofilament thread in the needle, 60 weight cotton thread on the bobbin and changing needle tension to 7.8. See page 21.

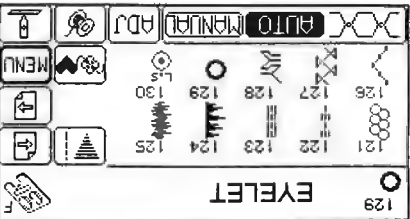













Eyelets

Small eyelets may be sewn on belts, used for lacing cords or simply used for a decorative effect.


Select stitch  .

Press the foot control and the machine will sew an eyelet and stop automatically.

Cut open the eyelet with a seam ripper, pointed scissors or an awl.

Scallop Hem


A scallop hem is a beautiful method of finishing pocket edges, sleeves, table linens, etc.

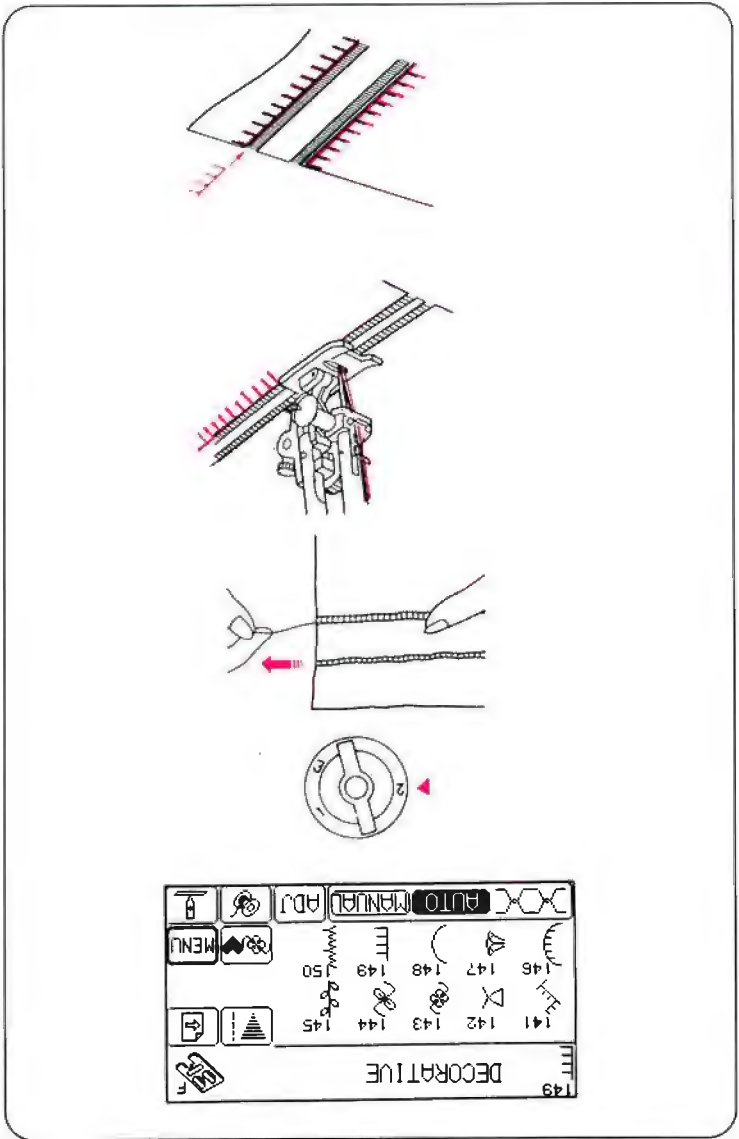
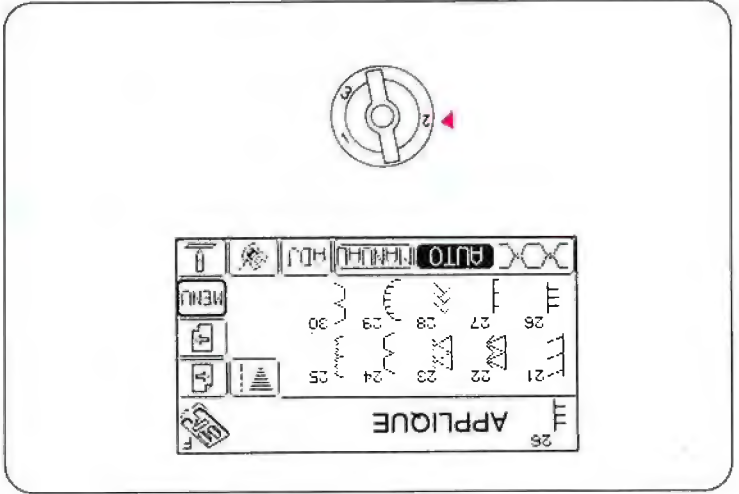
Select stitch  .

Fold hem with right sides together. Sew scallops 1 cm (3/8") from folded edge.

Trim close to stitching leaving 0.3 cm (1/8") seam allowance. Clip seams as shown or trim with pinking shears.

Turn the hem to right side and press.

Seam Variations	Stitch Width	Automatic Setting	Stitch Length
	7.0	5.0	2.5
			1.0



• Drawn Work

Set foot pressure dial to 2.

Select stitch 149.

Drawn work and fringing add a special touch on table linens and shawls. Choose a firm, woven fabric like linen where threads can be removed easily.

Drawn Work and Fringing

Carefully cut the fabric on grain. Determine the width of the drawn work and remove one yarn or fabric thread at each end.

Sew down the right side, guiding the fabric so the left hand and stitches fall in the open space.

After finishing the left side, turn the fabric around 180 degrees. Then sew down the other side.

Remove the yarns or fabric threads between the stitching.

Fringing uses the same method as drawn work.


Carefully cut the fabric on grain. Remove a single yarn or thread where the fringing is to begin. Sew down the left side so the right hand stitches fall in the open space. Remove all excess yarn to create fringe.

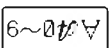
* Reset foot pressure dial to 3 after sewing.



Stitches 5 or 27 may also be used.

SECTION V

Built in Letters and Numbers Mode

Press the  key to access the mode selection keys.

Press the  key.

Press the  or  key to change the computer display screen between the four different displays.

① Letters and Numbers
Block Style

② Letters and Numbers
Script Style


③ Diacritical Letters
Block Style

④ Diacritical Letters
Script Style

Function Keys





Letter Size Key

Press the  key to change letter and number size from standard to approximately 2/3 size.



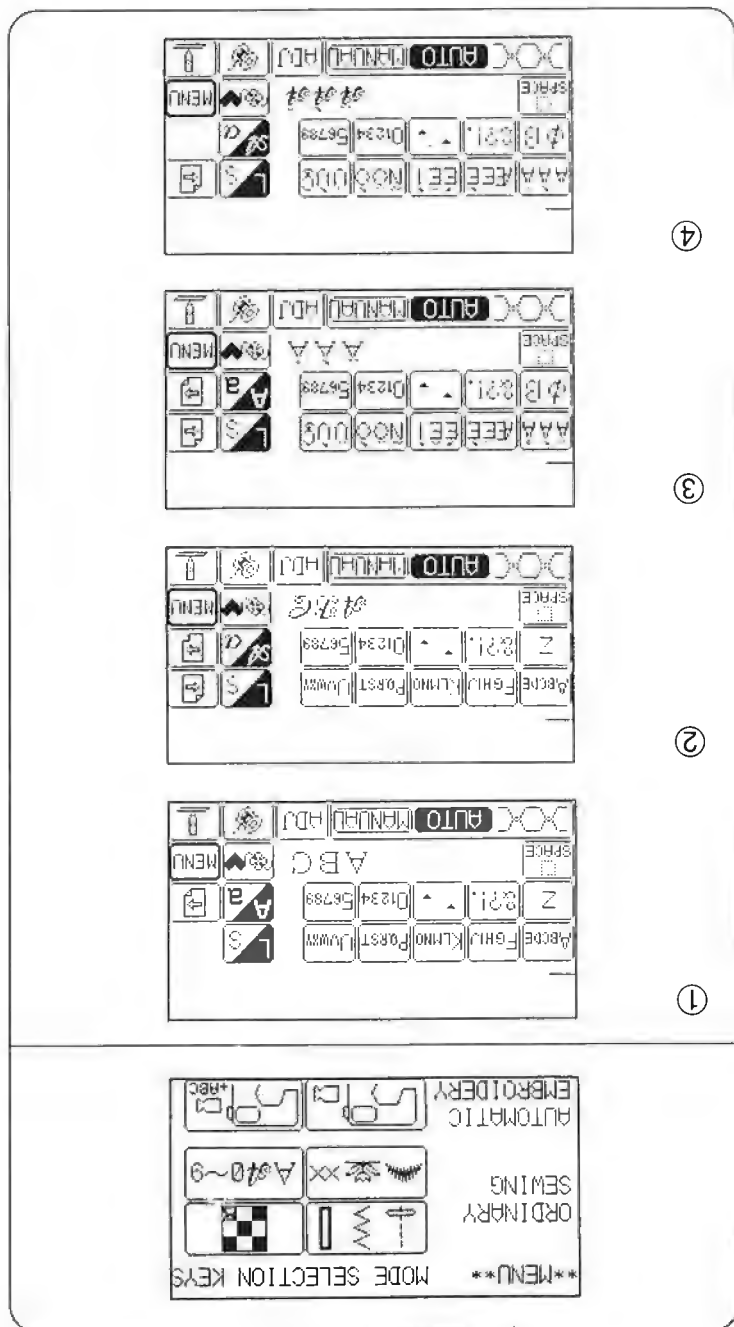
Upper/Lowercase Key

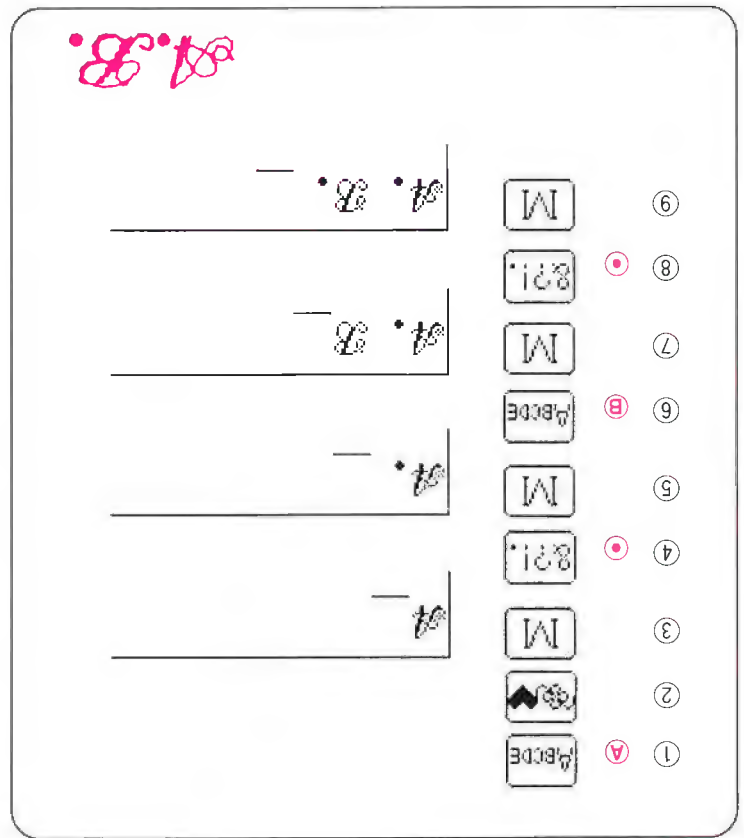
Press the  key or  key to alternate between uppercase and lowercase letters.



Combination Key

Letters and numbers may be combined using same method as decorative stitches. See page 56.

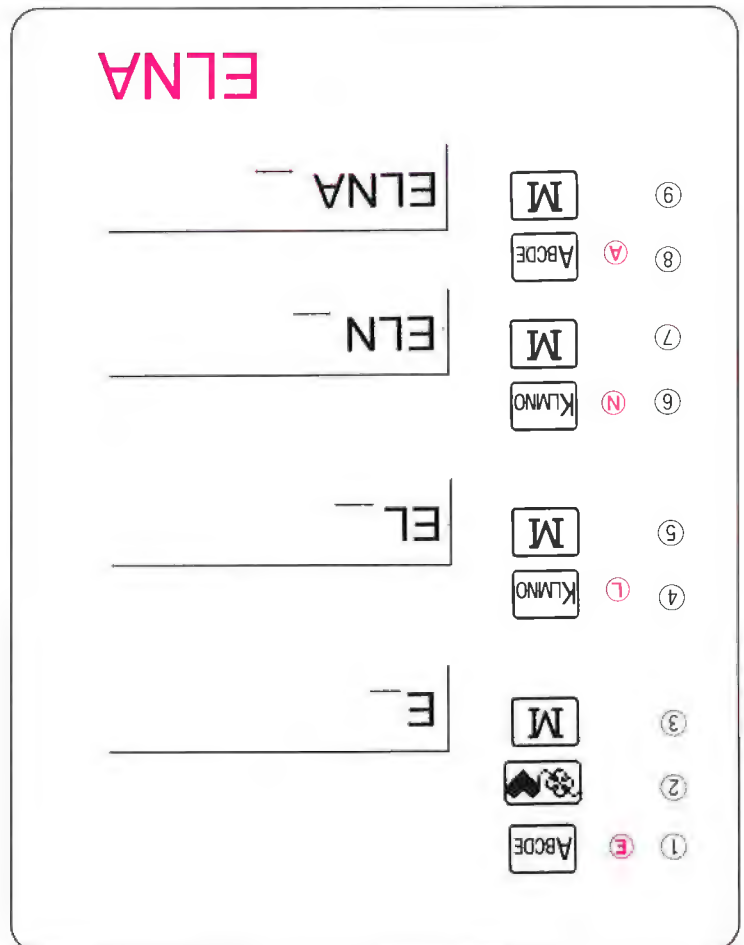




Example: Script Style "H.8."

1. Press **ABCD E** key until "H" is displayed in the screen upper left corner.
2. Press **KLMNO** key.
3. Press **M** key to memorize the "H". The cursor moves to next position after "H" is memorized.
4. Press **&?1.** key until "•" is displayed.
5. Press **M** key.
6. Press **ABCD E** key until "8" is displayed.
7. Press **M** key.
8. Press **&?1.** key until "•" is displayed.
9. Press **M** key.

Sew "H.8.".



Example: Block Style "ELNA"

1. Press the **ABCD E** key until "E" is displayed in the screen upper left corner.
2. Press **KLMNO** key.
3. Press **M** key to memorize the "E". The cursor moves to next position after "E" is memorized.
4. Press **KLMNO** key until "L" is displayed.
5. Press **M** key.
6. Press **KLMNO** key until "N" is displayed.
7. Press **M** key.
8. Press **ABCD E** key until "A" is displayed.
9. Press **M** key.

If you accidentally memorize the wrong character, press the **C** key.

Sew "ELNA". Cut connecting threads.

Programming Letters and Numbers

Example: Block Style, Upper/Lowcase "Who"

1. Press **W** key until "W" is displayed in the screen upper left corner.

2. Press **M** key.

3. Press **M** key to memorize "W".

4. Press **FGHI** key until "H" is displayed.

5. Press **Aa** key to change display for lowercase.

6. Press **M** key to memorize "h".

7. Press **KLMNO** key until "o" is displayed.

8. Press **M** key to memorize "o".

Sew "Who".

Example: Block Style/Lowcase "très"

1. Press **PORST** key until "T" is displayed in the screen upper left corner.

2. Press **Aa** key to change display for lower case.

3. Press **M** key.

4. Press **M** key to memorize "t".

5. Press **PORST** key until "r" is displayed.

6. Press **M** key.

7. Press **FGHI** key twice.

8. Press **FGHI** key until "è" is displayed.

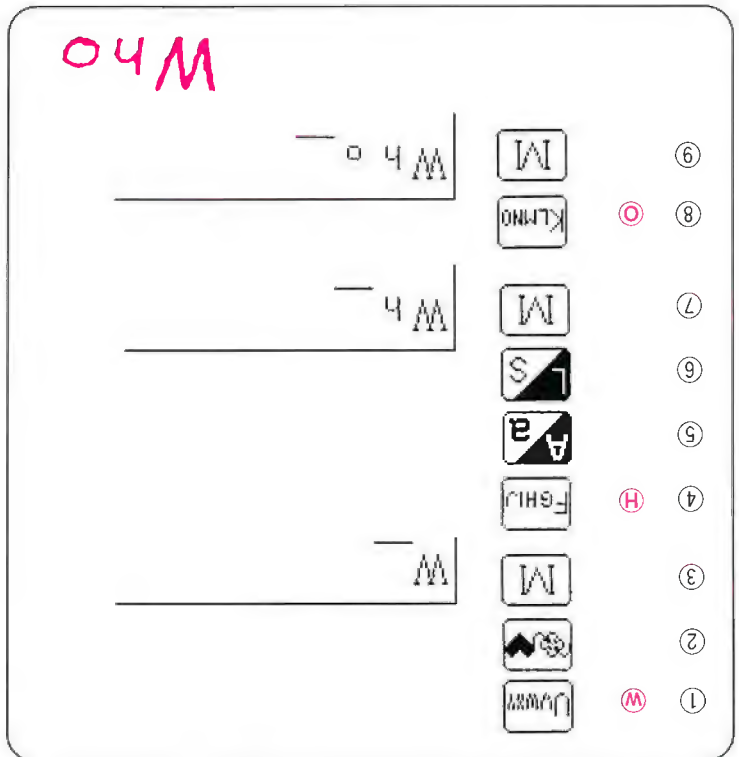
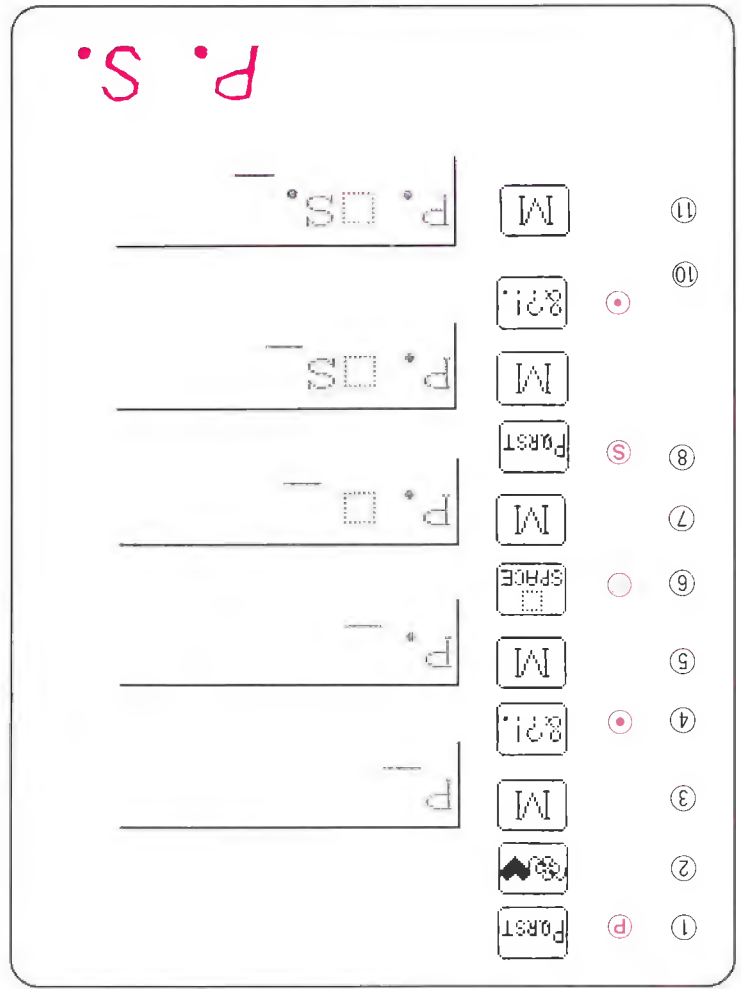
9. Press **M** key.

10. Press **FGHI** key twice.

11. Press **PORST** key until "s" is displayed.

12. Press **M** key.

Sew "très".



Example: Letters and Space "P. S."

1. Press [P] key until "P" is displayed in the screen upper left corner.
 2. Press [M] key.
 3. Press [M] key to memorize "P".
 4. Press [&21] key until "•" is displayed.
 5. Press [M] key to memorize "P".
 6. Press [SPACE] key to create space between letters.
 7. Press [M] key to memorize "S".
 8. Press [P] key until "S" is displayed.
 9. Press [M] key to memorize "S".
 10. Press [&21] key until "•" is displayed.
 11. Press [M] key to memorize "S".
- The amount of space may be adjusted:
- Press 1 time (5 mm)
 Press 2 times (4 mm)
 Press 3 times (3 mm)
 Press 4 times (2 mm)

Sew P. S.

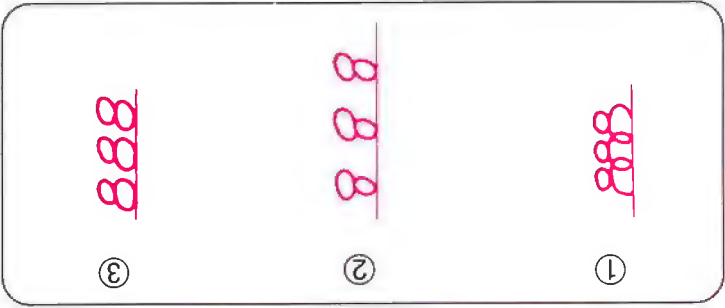
Example: Block Style/Reduce Size "Who"

1. Press [W] key until "W" is displayed in the screen upper left corner.
 2. Press [M] key.
 3. Press [M] key to memorize "W".
 4. Press [FGHIJ] key until "H" is displayed.
 5. Press [Aa] key to change display for lowercase.
 6. Press [Ls] key to reduce size.
 7. Press [M] key to memorize "h".
 8. Press [KLMN] key until "o" is displayed.
 9. Press [M] key to memorize "o".
- Sew "Who".

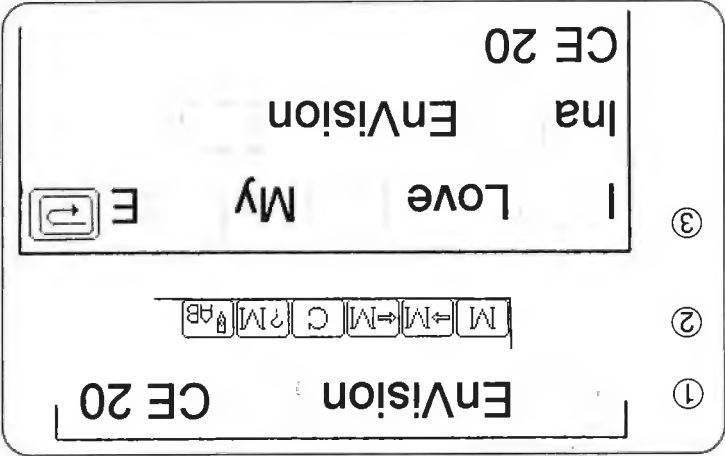
1. Prior to programming, delete the previously programmed stitches by pressing the clear key. For a long program, it is advisable to write down the programming procedure in order to avoid an error.
2. Up to 50 stitches or letters/numbers can be programmed in the various memories. Note, however, that the straight, buttonhole and other utility stitches cannot be memorized.
3. If you find that a wrong stitch is selected and memorized in the middle of programming, press the clear key. That stitch alone will be cleared.
4. After sewing a lowercase "&" or "." (period), insert a space for best results.
5. If a program has not been stored, it will be erased...
 - when the power switch is turned off,
 - if you have been sewing a programmed stitch, stop the machine and then press any stitch key or menu key.
6. If an incorrect operation is performed in programming, an electronic alarm will sound to signal an error.

Programming Notes

- Fine Tuning Adjustment**
- If letters or numbers are uneven and distorted, adjust them with the fine tuning dial. See page 5.
- ① When letters or numbers overlap, turn fine tuning dial towards the "+" sign.
 - ② When letters or numbers are drawn out, turn the fine tuning dial towards the "-" sign.
 - ③ Fine tuning correct.

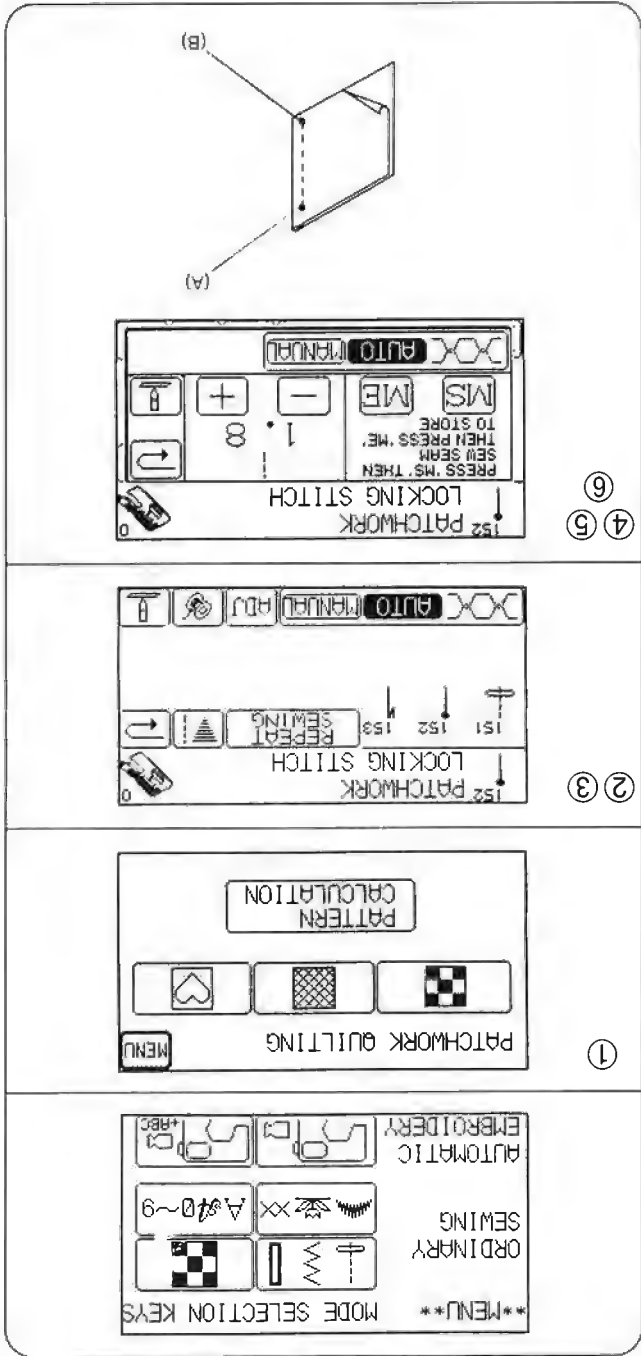


- How to Check Memorized Stitches**
- ① Memorize the words "I Love My Elna Envision CE 20".
 - ② Press key. (All memorized words will appear.)
 - ③ Press key.



Recommended Fabric, Needle, Thread and Pressure for Patchwork, Quilting and Freehand Quilting

	Patchwork	Quilting	Freehand Quilting
Needle Size	# 11	# 11	# 11
Needle Thread	# 60	Transparent	Transparent
Bobbin Thread	# 60	# 60 to # 90	# 60 to # 90
Pressure Dial	3	3	—
Fabric	Broadcloth	Broadcloth Satin Sheeting Wool Velveteen	Broadcloth Satin Sheeting Wool Velveteen



SECTION VI

Patchwork/Quilting Mode

Stitches frequently used for patchwork/quilting have been grouped together for your convenience. The machine has also been programmed to automatically perform special time-saving functions.

Press the **[MENU]** key to access the mode selection keys.

Press the **[Patchwork Key]** key to access the patchwork quilting keys.

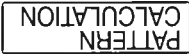
Patchwork key (see below)



Quilting key (see page 71)



Freehand quilting key (see page 71)



Pattern calculation key (see page 72)

Patchwork Key



① Press **[Patchwork Key]** key.

② Select stitch **[151]**, **[152]** or **[153]**.

③ Press **[REPEAT SEWING]** key. (This key is beneficial when the same length of stitches is required while piecing fabric.)

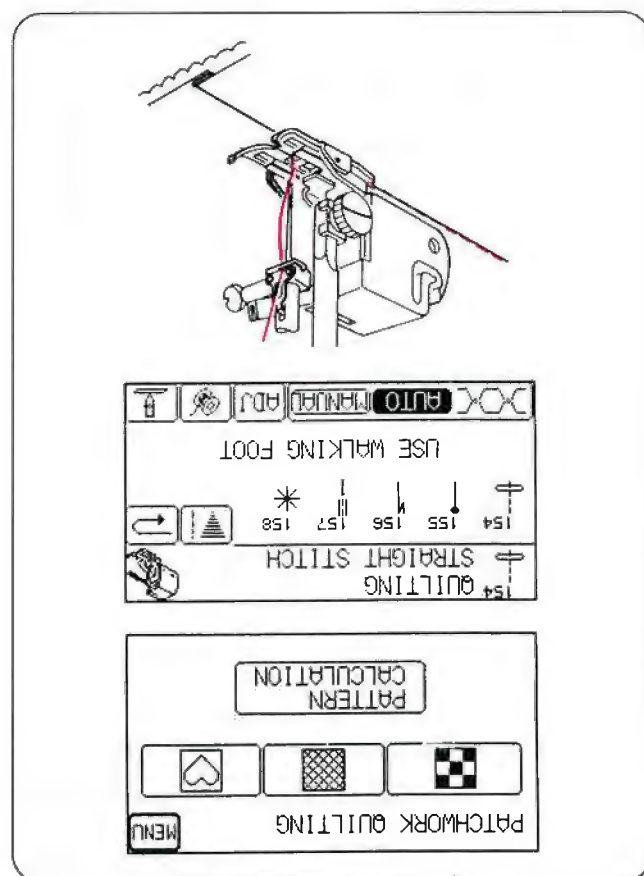
④ Press the memory start **[MS]** key.

⑤ Start sewing at (A) (see illustration) and press the reverse key at (B).

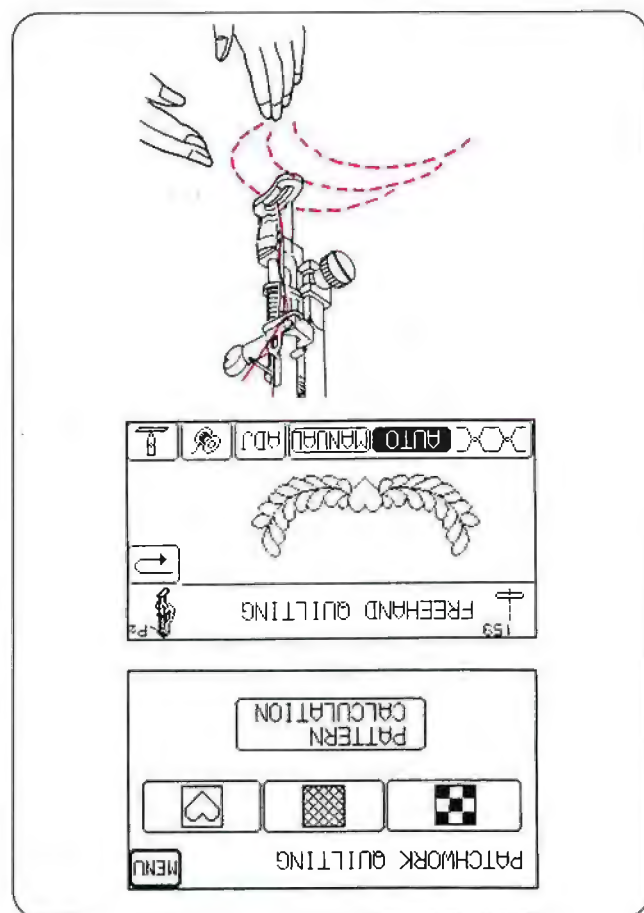
⑥ Press the memory end **[ME]** key after the machine stops automatically.

* To memorize a new length seam, press **[MS]** again and start sewing. The previously memorized seam length will be erased.

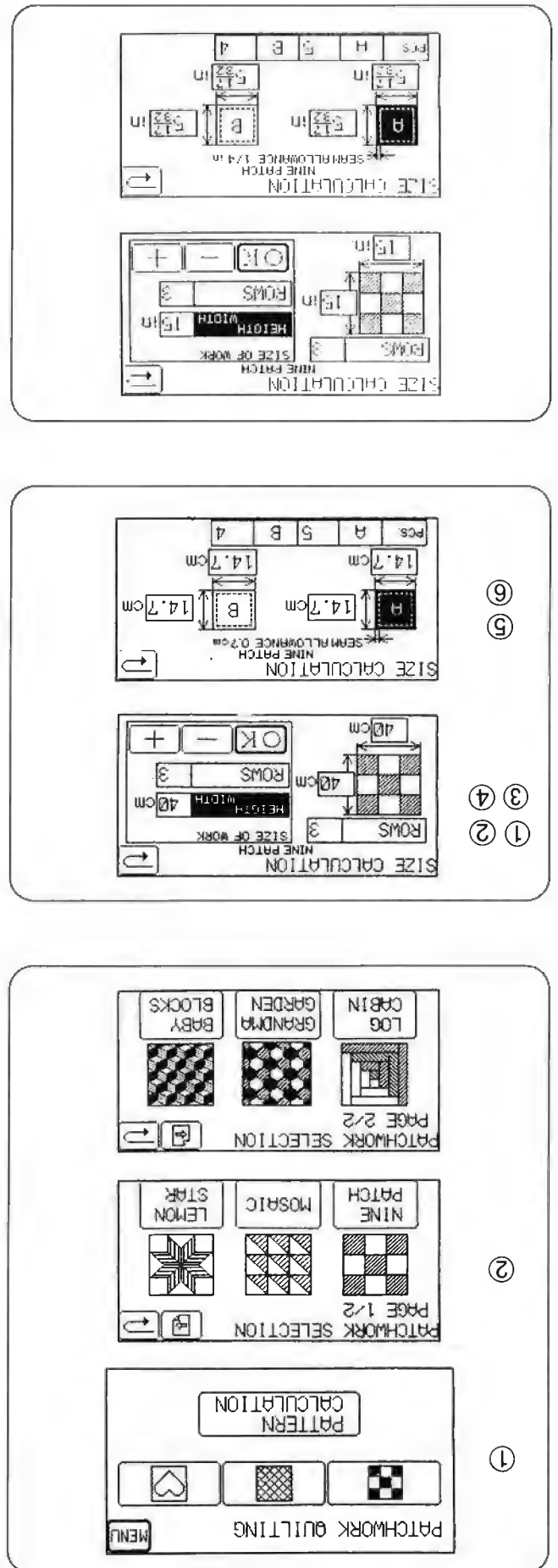
* Press the **[REVERSE]** key twice after sewing to return to the patchwork quilting keys.



- Quilting Key**
- The stitches available for quilting may be used for outline quilting or stitch in the ditch quilting.
- ① Press key.
 - ② Attach the walking foot. See page 32.
 - ③ Select stitch 154, 155, 156, 157, 158, or 159.
 - ④ Sew.
- Press the key after sewing to return to the patchwork quilting keys.



- Freehand Quilting Key**
- ① Press key. Feed dog lowers automatically when the key is pressed. (Carriage moves; make sure nothing obstructs it.)
 - ② Attach the darning foot P2. See page 36.
 - ③ Draw design on fabric with washable fabric marker.
 - ④ Lower presser foot, press up/down needle key to bring bobbin thread to fabric top.
 - ⑤ Guide the fabric by hand and begin sewing.
 - ⑥ Tie together beginning and ending threads.
- Press the key after sewing to return to the patchwork quilting keys.



PATTERN CALCULATION

Pattern Calculation Key

- The size and number of each piece of fabric can be calculated automatically. (There are six different designs.)
- Press **PATTERN CALCULATION** key.
 - Press the **↔** or **↵** key to alternate between screens.

How to Calculate Fabric

Example: **NINE PATCH** key/Centimeter indication

- Press **NINE PATCH** key.
- Set the size of work by pressing the **—** or **+** key.

Nine Patch..... 5 cm to 100 cm
 Mosaic, Lemon Star, Grandma Garden 8 cm to 100 cm
 Log Cabin..... 11 cm to 100 cm
 Baby Blocks 9 cm to 100 cm

- Press the **ROWS** key and select the number of rows by pressing the **—** or **+** key.
- Press the **OK** key.

- The size (seam allowance of 0.7 cm included) and required number of pieces are indicated.
- * The recommended colors are also indicated.

- Press the **↵** key after confirming.

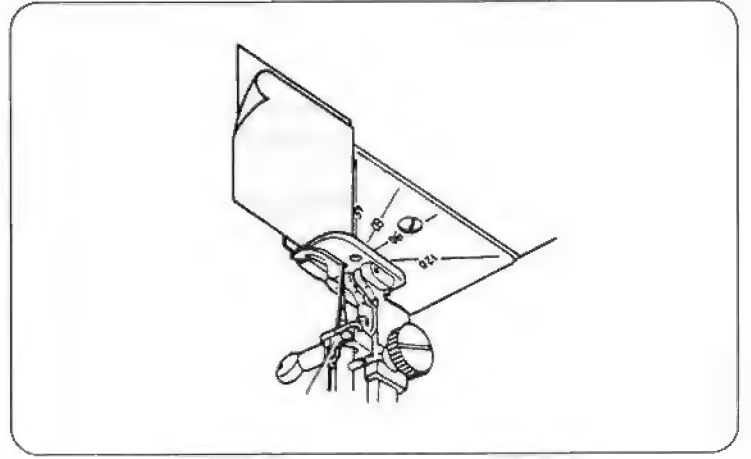
Example: **NINE PATCH** / Inch indication

See page 27 on how to change measurement indication between centimeters and inches. Use same method as centimeter indication.

Patchwork Conversion Chart

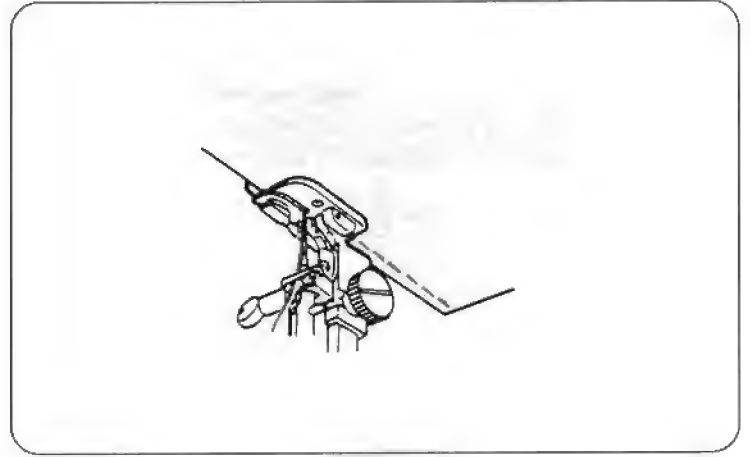
When the following size calculation appears on the screen, use the fraction indicated:

1/32"-5/32" use 1/8"	18/32"-21/32" use 5/8"
6/32"-9/32" use 1/4"	22/32"-25/32" use 3/4"
10/32"-13/32" use 3/8"	26/32"-29/32" use 7/8"
14/32"-17/32" use 1/2"	30/32"-32/32" use 1"



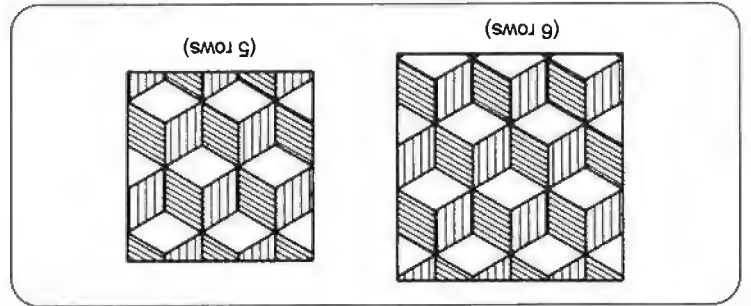
Angle Scale on Needle Plate

You can sew without marking by matching the edge of fabric to the angle scale on the needle plate at the beginning.



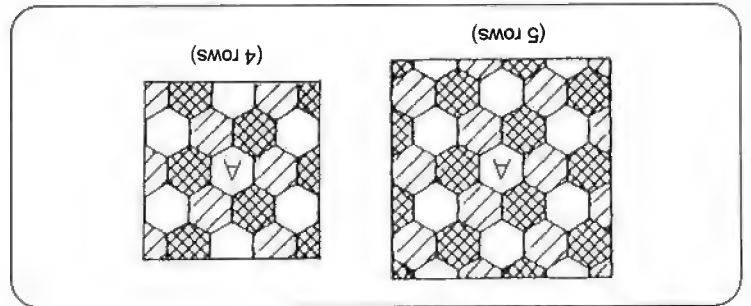
How to Use Patchwork Foot O

Sew, guiding the edge of fabric along the guide of foot.
 * A seam allowance of 0.7 cm (1/4") is created by guiding the edge of fabric along the guide.



Example: Baby Blocks

Count from left to right, centering one block:



How to Count Rows

Example: Grandma Garden
 Count from left to right, centering:

SECTION VII

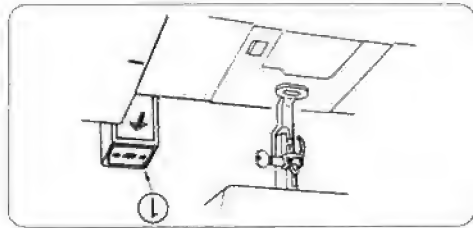
Getting Ready to Monogram and Embroider

Before turning on your machine, clear your table surface of anything that might obstruct the carriage movement. If your machine is in a cabinet, check that the machine is even or above the cabinet surface. (The carriage could possibly hit the cabinet and disturb the sewing result.)

When monogram or embroidery is completed, before turning off your machine, press the **MENU** key to return carriage to its non-active position.

Do not turn the flywheel by hand while carriage is moving.

① Carriage



NOTE: The foot control cannot be used in embroidery mode. Use the start/stop key.

Selecting Needle and Thread

WEIGHT OF FABRIC	TYPE OF THREAD	TYPE OF NEEDLE	NEEDLE SIZE
Light, Medium	Size 40 or 50 Cotton machine embroidery thread, Rayon thread	Universal Ball Point Stretch Needle	11 (75)
Heavy	Size 30 or 40 Cotton machine embroidery thread, Rayon thread	Universal	14 (90)

• Template

The illustration shows various starting points.

② Starting point for Envision Card Nbrs. 2, 3, etc.

③ Starting point for Envision Card Series 100

④ Starting point for monogramming

⑤ Remove Template hole

Choosing Stabilizers:

For beautiful embroidery, it is important to use stabilizers properly.

Press-on: For stretch fabric such as knits, lightweight and shrinkable fabric.

Sew-in: For sturdy fabrics and fabrics which cannot be ironed.

Stabilizing Fabric

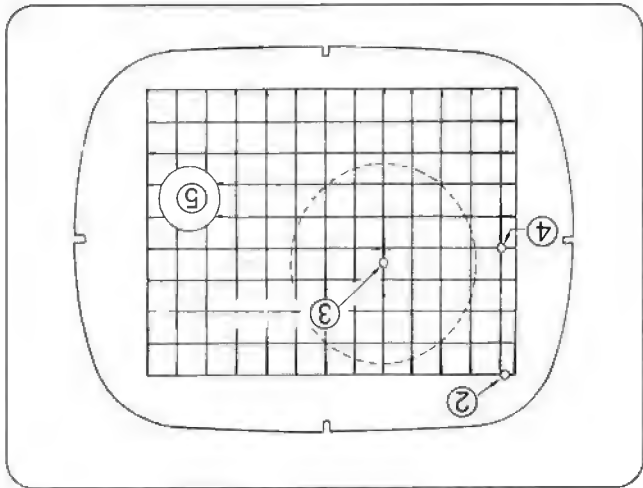
Stabilizers for embroidery work are available in two types: press-on or sew-in.

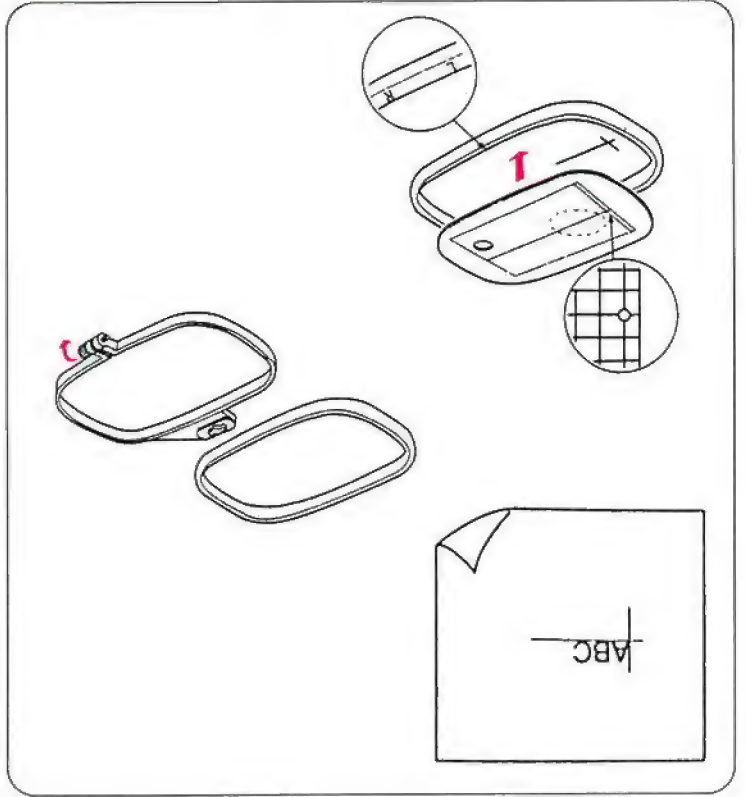
Use stabilizer on fabric wrong side. (More than one layer may be required.)

The sew-in type should be used when embroidering fabric which cannot be ironed or sections which are difficult to iron.

For both types of stabilizers, prepare a piece larger than the embroidery hoop and place it in the hoop so the entire piece can be fastened within the hoop. (Fabric should be taut.)

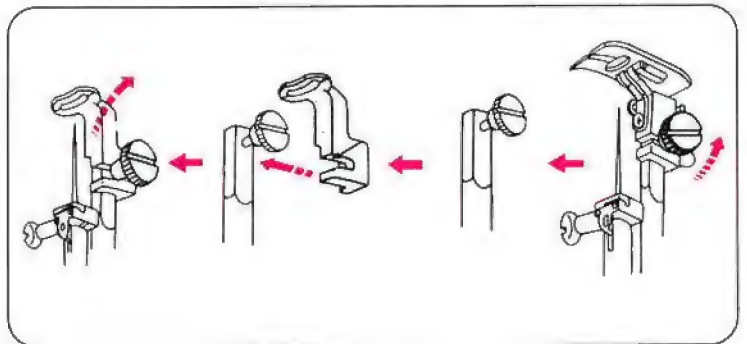
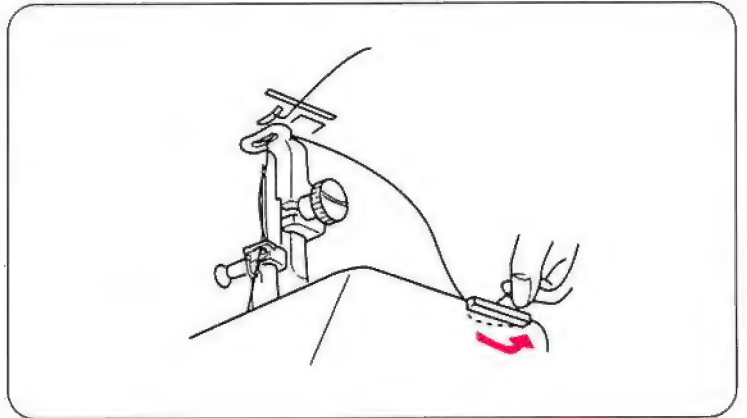
NOTE: Ironing temperature varies with the kind of stabilizer and fabric.





- NOTE:** The L and R markings on the hoop should be visible and at the bottom when setting in the template.
1. Use a washable fabric marker to mark reference lines for embroidery position.
 2. Loosen the screw on the outer hoop and remove inner hoop.
 3. Set the template inside the inner hoop.

Securing Fabric in Embroidery Hoop

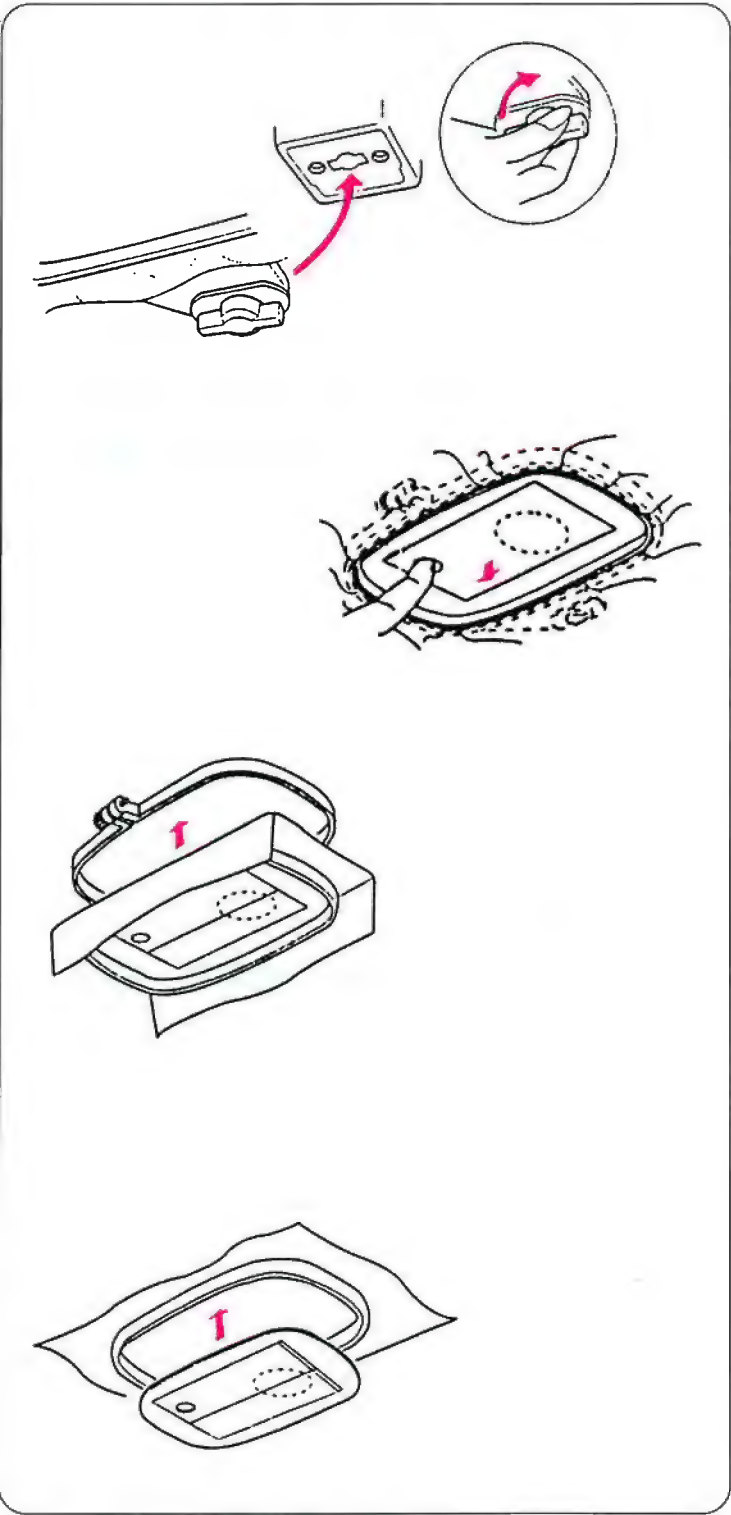


Attach the "P" embroidery foot
Raise the presser foot. Loosen screw and remove shank. Position "P" foot and tighten screw.

Machine Threading
Thread the machine as described for ordinary sewing. (See pages 16-19.) The needle thread is passed through the P foot hole and up to the front of the thread cutter, which acts as the thread holder. Leave 2 to 3 cm (1") thread tail dangling.

Extension Table
Attach the extension table. See page 5.

Foot Pressure Dial
Set foot pressure dial to 2. See page 6.

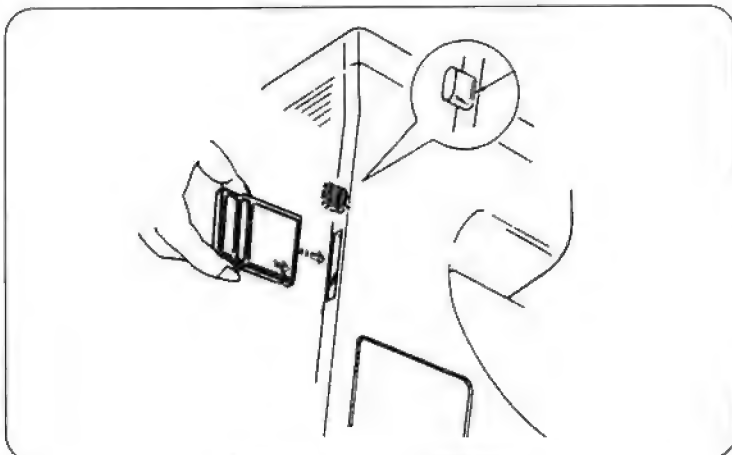
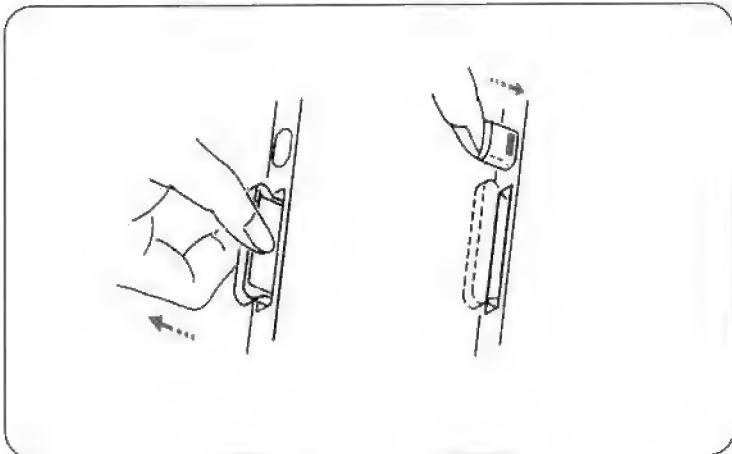
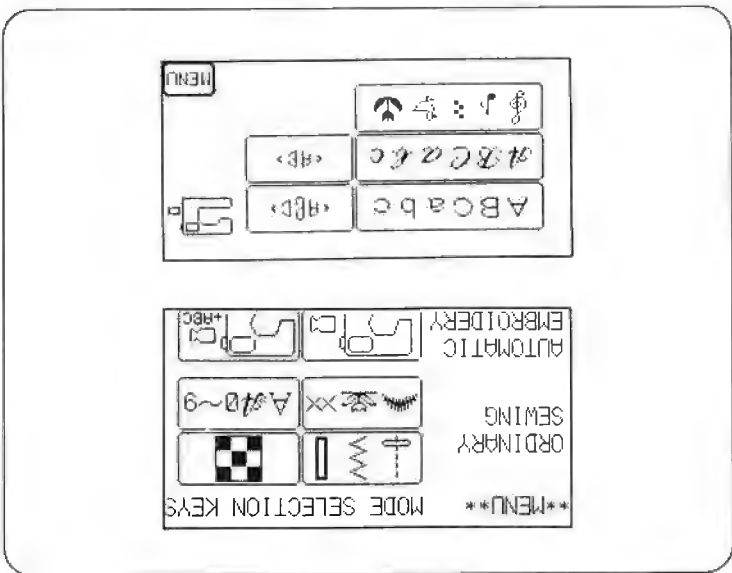


4. Place the inner hoop/template on top of fabric and stabilizer. Match the fabric reference lines with the template. Complete this step on a flat surface for accuracy.

5. Carefully lift inner hoop/template and fabric/stabilizer and set them into the outer hoop. Tighten screw on outer hoop. Check reference lines with template and adjust accordingly. Fabric should be held taut inside the hoop. Always pull fabric taut respecting the fabric grain (vertical and horizontal).

6. Remove template.

7. The hoop turnkey should be parallel to the hoop. Position hoop on machine and place the prong into the carriage. Lock the hoop into position by moving the turnkey clockwise.



Insert Envision Card

- ① Turn off the machine. Insert the card making sure the arrow on the label is facing you.
- ② Push the card straight in until it clicks and the eject button pops out. (See illustration.)
- ③ If the Envision card is incorrectly inserted or not pushed in far enough, the eject button will not stick out.
- ④ Turn on the machine. The menu screen appears for a few seconds. The display changes and the machine is set for straight stitch.

Eject Envision Card

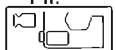
Turn off the machine. Press the card eject button. The Envision Card comes out halfway and may be safely removed.

SECTION VIII

Normal Embroidery Mode

Envision Card 101




Turn off machine and insert Envision Card 101. Turn on machine.



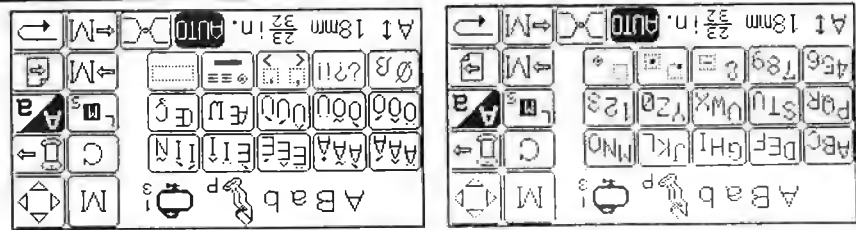
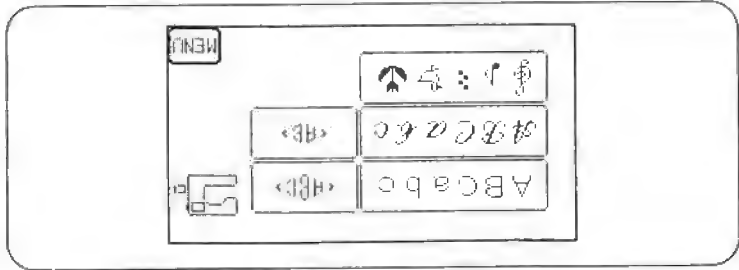
Press the key. The carriage will move and the feed dog will be lowered automatically.

Letter styles and border designs programmed on card 101 will appear.

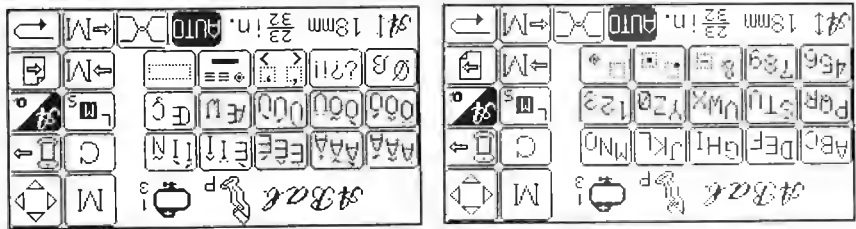
There are five selection keys that contain ten different display screens on Envision Card 101. Press the selection key according to the type of embroidery desired.

- * Once the type of embroidery has been selected, use the  or  key to change the display.
- * Press the  key to return to the selection key screen.

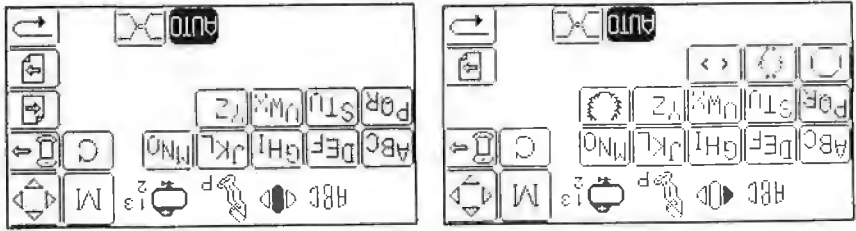
Selection Keys



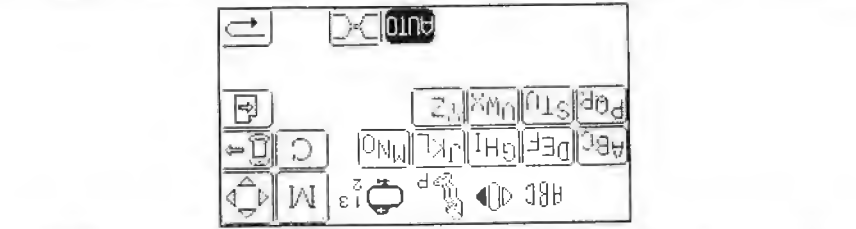
Alphabet - Block Style
2 display screens



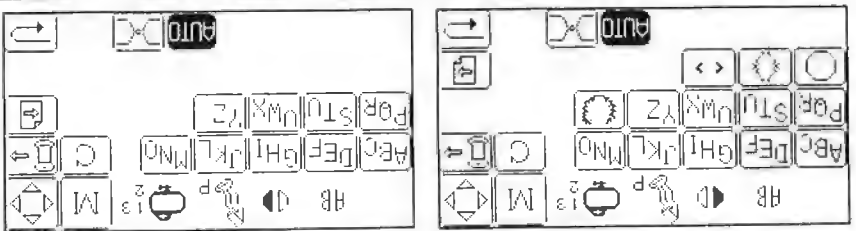
Alphabet - Script Style
2 display screens



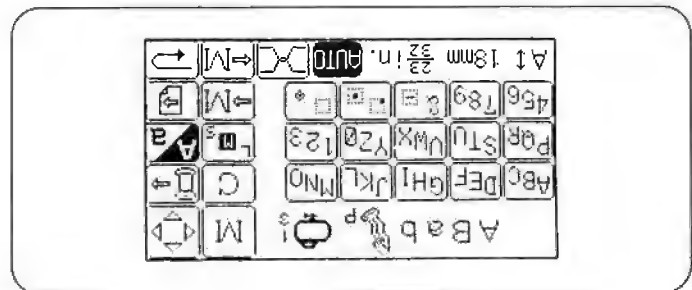
Three Letter Monogram
3 display screens



Two Letter Monogram
2 display screens



Border Designs
1 display screen



Function Keys

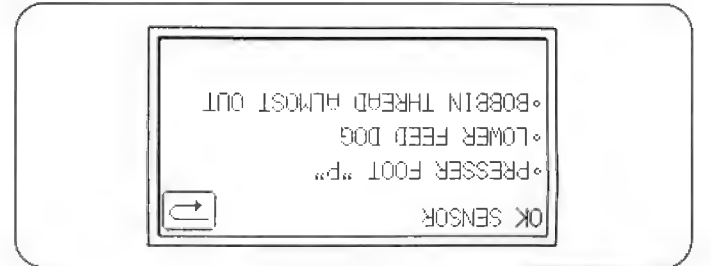
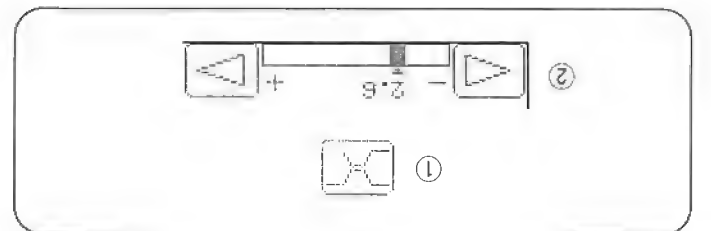
M Memory Key
See page 56.

C Clear Key
See page 56.

L Letter Size Key
Press the letter size key to alternate between large, medium and small size letters and numbers. (Letter size affects how many letters/numbers may be combined.)

M Store Key
See page 56.

M Recall Key
See page 56.



How to Select a Design

Press the **A B C a b c** key.

* The **P** means that embroidery foot P should be used.

* The number next to the **P** symbol indicates which number embroidery frame may be used. (Embroidery hoop No. 3 is optional.)

X Thread Tension Adjustment Key
See below

S Sewing Position Key
When sewing letters/numbers, there may be a need to sew a second row. Press the sewing and frame position key to align the wording.

C Color Change Key

Press the color change key and the key will darken to indicate that color select mode is on. The machine will automatically stop after sewing each letter or design section, allowing you to switch needle thread color.

A or **a** Upper/Lowcase Key

Press the upper/lowcase key to alternate between uppercase and lowercase letters.

Thread Tension Adjustment

If the bobbin thread appears on the upper surface of the fabric:

- ① Press the thread tension key.
- ② Decrease by pressing the **X** key.

OK Sensor

If the OK sensor appears on the screen after sewing starts, check the items listed, then press the **C** key and continue sewing.

Programming Letters and Numbers

Example: Block Style "ELNA"

1. Press **DEF** key until "E" is displayed in the screen upper left corner.
 2. Press **M** key to memorize the "E".
 3. Press **JKL** key until "L" is displayed.
 4. Press **M** key.
 5. Press **MNO** key until "N" is displayed.
 6. Press **M** key.
 7. Press **ABC** key until "A" is displayed.
 8. Press **M** key.
- If you accidentally memorize the wrong character, press the **C** key.

9. Lower presser foot. Start by pressing **START/stop** key. Sew 5 or 6 stitches and stop by pressing **start/STOP** key.

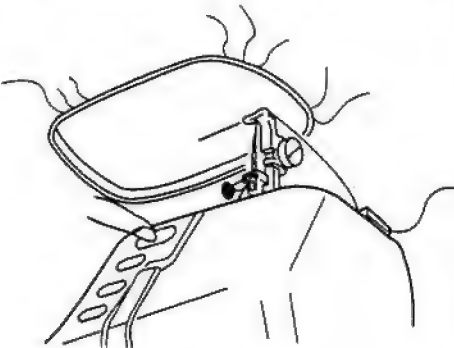
Raise presser foot. Cut needle thread tail close to fabric.

Lower presser foot.

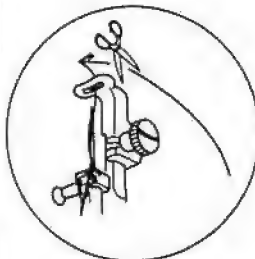
Press start/stop key.

When sewing is started, the word "ELNA" shifts on the computer display screen. When sewing is completed, the original display returns and, at the same time, an electronic sound is emitted to signal completion of sewing.

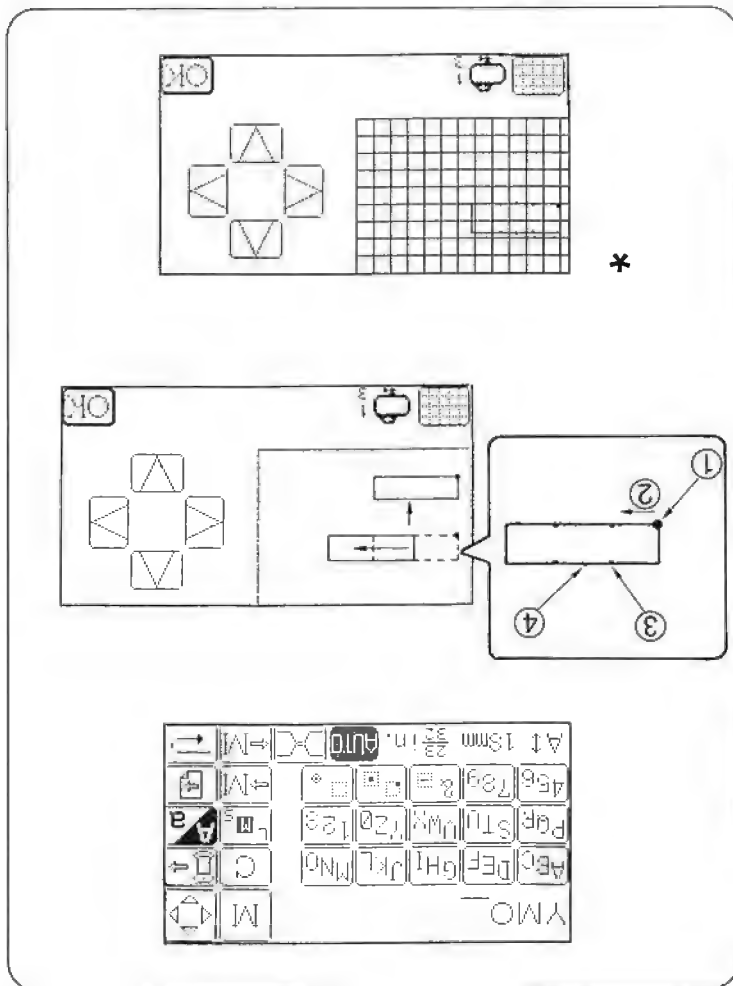
Cut the connecting threads.



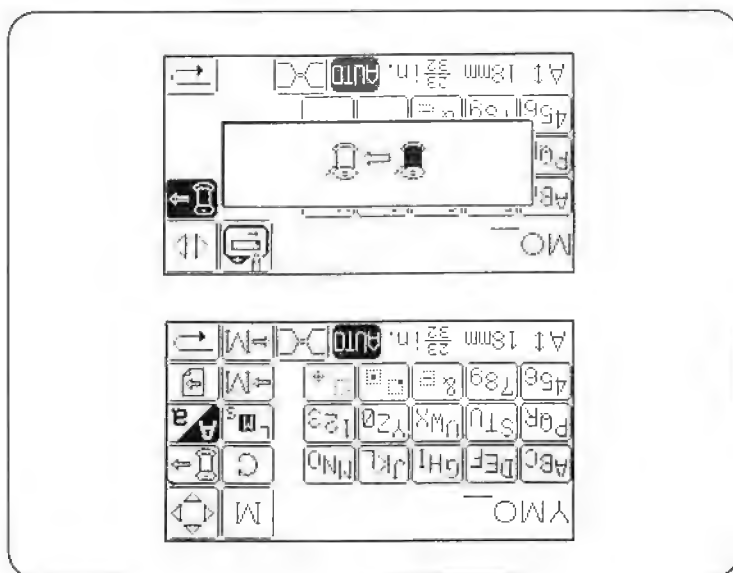
ELNA



①	DEF	E
②	M	
③	JKL	
④	M	EL
⑤	MNO	
⑥	M	ELN
⑦	ABC	
⑧	M	ELNA



- Example: How to Sew a Second Row of Letters or Numbers/ Sewing Position Key**
1. Press key. The original letter position and range are displayed.
 2. Move the embroidery hoop to the desired starting position by pressing the direction . (Press the **OK** key after setting position.)
 3. Press the **START/STOP** key to start sewing.
 - * Press grid key to alternate between display, template or no template.




- Example: Block Style "YMO"/ Color Change Key**
1. Program the letters "YMO".
 2. Press key.
 3. Press **START/STOP** key.
 4. The machine automatically stops after each letter is sewn so you may change thread color.

[illegible]







82

Example: Block Style "YMO" / Letter Size Key

1. Press  key.
2. Program the letters "YMO".
3. Sew sample.

3. Sew sample.

Example: Diacritical/Block Style/Lowercase “très”

1. Press  key.
2. Press  until "t" is displayed.
3. Press  key.
4. Press  key until "r" is displayed.
5. Press  key.
6. Press  key.
7. Press  key for "è" display.
8. Press  key.
9. Press  key.
10. Press  key for "s" display.
11. Press  key.
12. Sew sample.
- * Press  key.

* Press  key.


12. Sew sample.

11. Press **M** key.

10. Press **STU** key for "s" display.


9. Press key.

8. Press **M** key.

7. Press  key for "e" display.

6. Press  key.

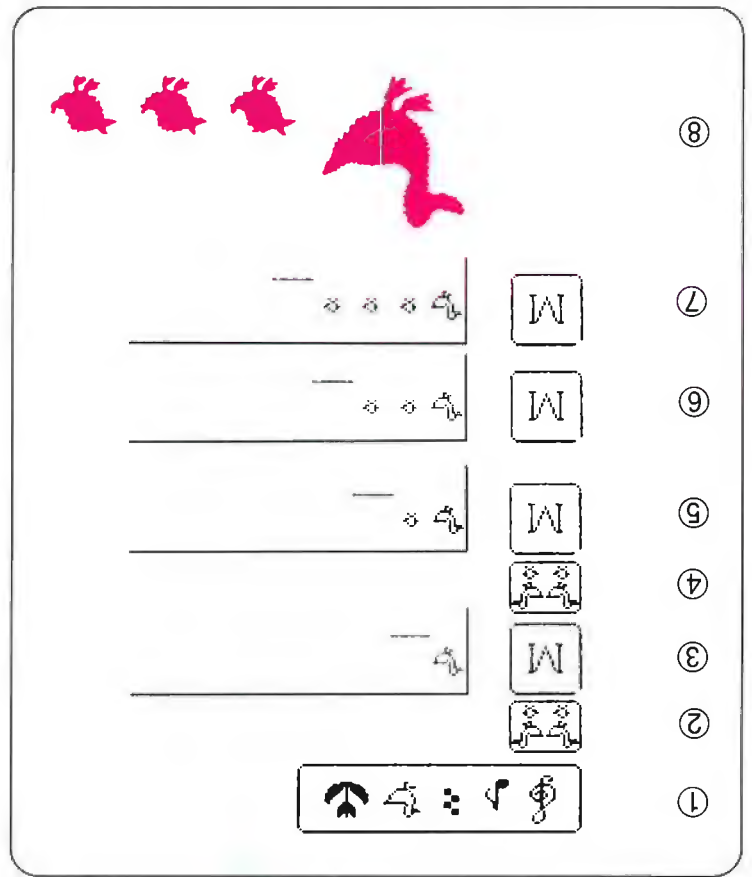
5. Press **M** key.

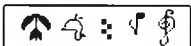







4. Press  key until "r" is displayed.

3. Press **M** key.

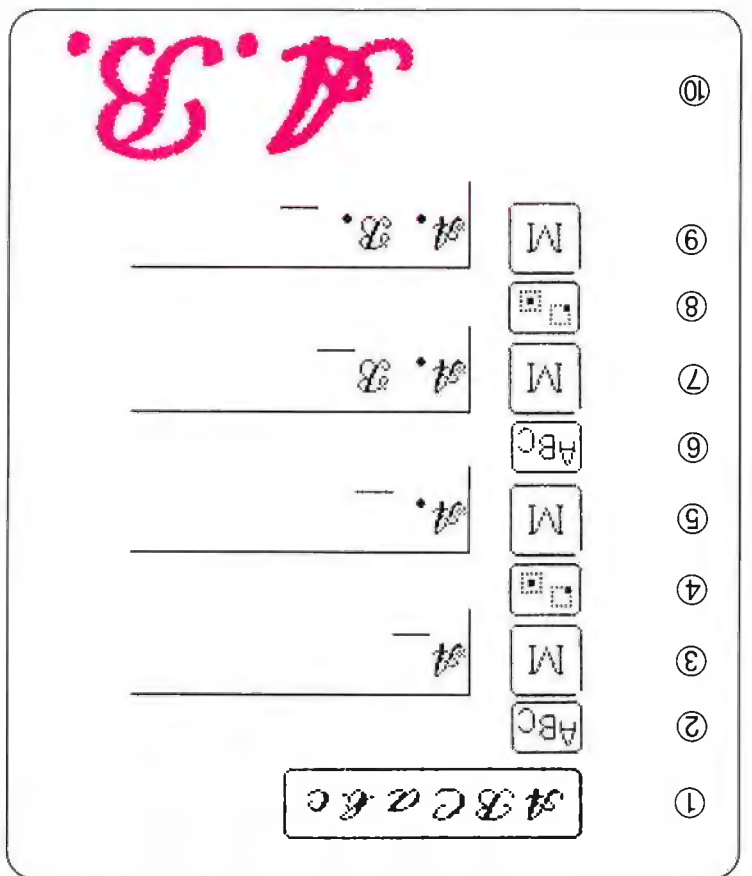
2. Press **STU** until "t" is displayed.

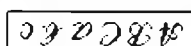









1. Press key.



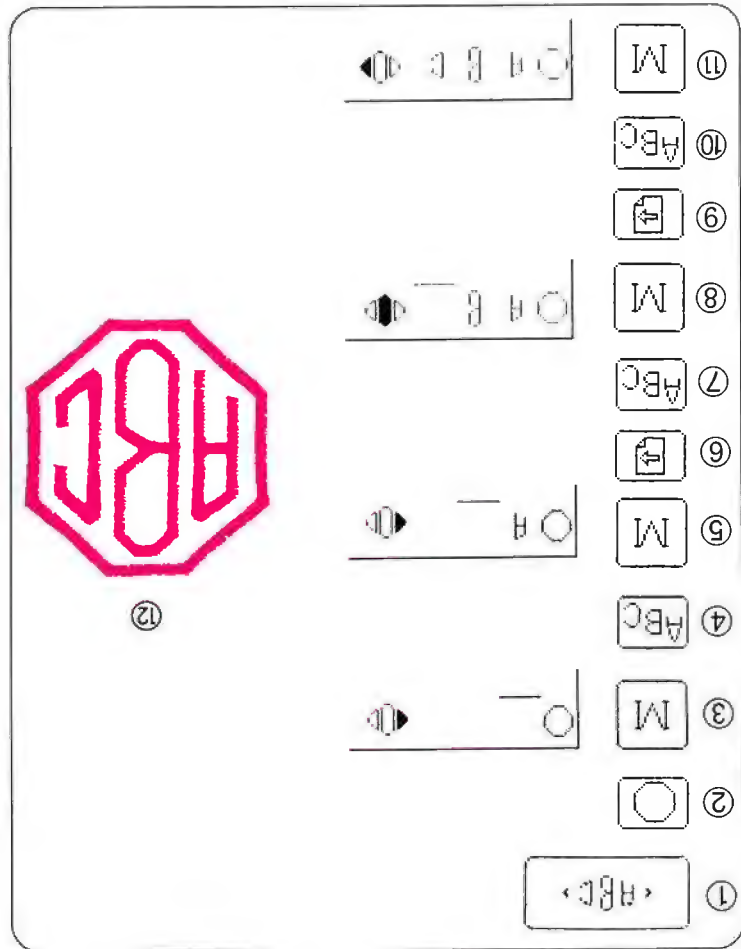
1. Press  key.
 2. Press  key for "♥" display.
 3. Press  key.
 4. Press  key until "✿" is displayed.
 5. Press  key.
 6. Press  key.
 7. Press  key.
 8. Sew sample.
- Press  key.

Example: Border Designs




1. Press  key.
 2. Press  key for "♥" display.
 3. Press  key.
 4. Press  key for "✿" display.
 5. Press  key.
 6. Press  key until "♫" is displayed.
 7. Press  key.
 8. Press  key for "★" display.
 9. Press  key.
 10. Sew sample.
- Press  key.

Example: Script Style "A. B."

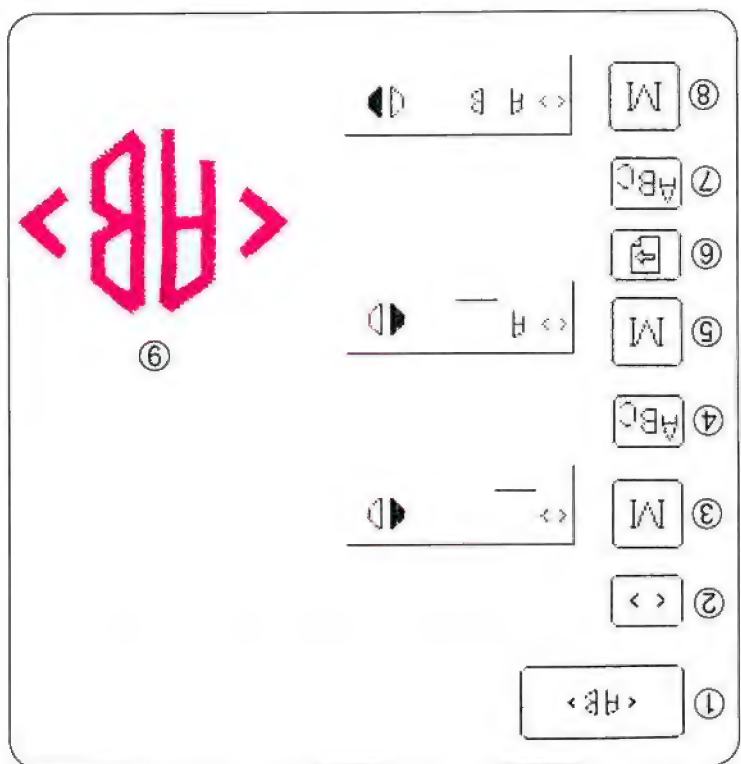


Example: Three Letter Monogram Inside Border

1. Press <ABC> key.
2. Press key for border.
3. Press M key.
4. Press ABC key for "A" display.
5. Press M key.
6. Press key.
7. Press ABC key until "B" is displayed.
8. Press M key.
9. Press key.
10. Press ABC key until "C" is displayed.
11. Press M key.
12. Sew sample.

* The  mark indicates which letter (left, center, right) will be memorized.

Press  key.



Example: Two Letter Monogram Inside Border




1. Press <AB> key.
2. Press key for border.
3. Press M key.
4. Press ABC key for "A" display.
5. Press M key.
6. Press key.
7. Press ABC key until "B" is displayed.
8. Press M key.
9. Sew sample.

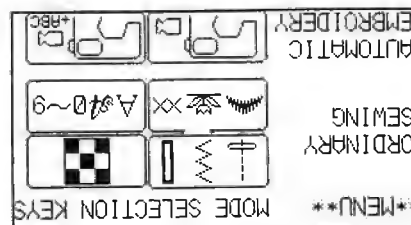
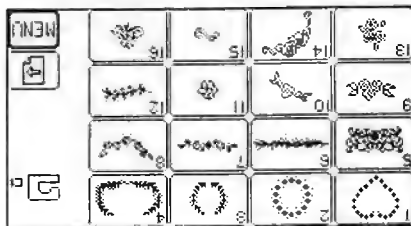
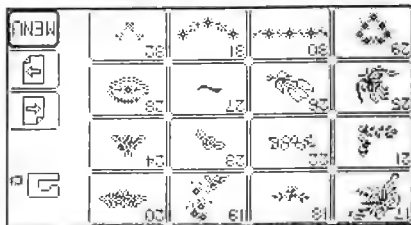
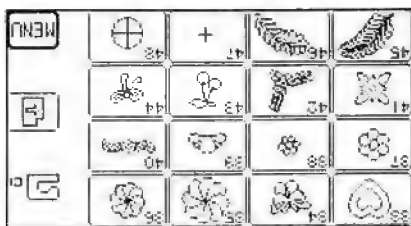
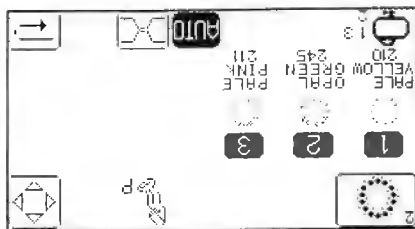
Press  key.

Press  key.

* Always program borders before letters for two or three letter monograms.

How to Select and Sew a Design

1. Select design  by pressing the screen.
2. Display screen will indicate the suggested thread color for each section of the design. Thread machine with color appropriate for first section.
3. The  means that embroidery foot P should be used.
4.  Display indicates appropriate embroidery hoop to use.



Envision Card 102

Turn off machine and insert Envision Card 102.


Turn on machine.

Press the  key.

Designs programmed on card 102 will appear:

Alternate between the 3 display screens by pressing the  or  key.

5. Mark the fabric with reference lines, matching them with those on the template, and set the fabric in the embroidery hoop.
6. Attach the hoop to the carriage.

If the initial needle position is not directly over the starting point marked on your fabric, press the  key. Use the arrow keys to move the carriage until they are aligned.

7. Press the **START/stop** key. Sew 5 or 6 stitches and stop by pressing start/**STOP** key.
- Cut needle thread tail close to fabric.
- Press the **START/stop** key and machine will sew step 1 and automatically stop.
- Cut thread.

8. Change thread color. Sew step 2 using same method.

9. Change thread color. Sew step 3.





* Cut all connecting threads.

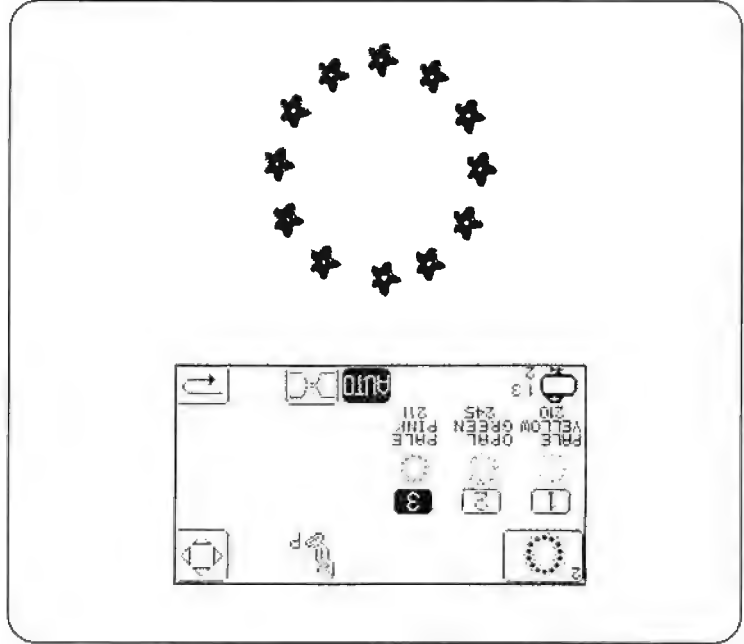
NOTE: Some sewers prefer their embroidery be very compact. Elna does not suggest sewing the design twice, but instead using a heavier thread weight. Sewing the design twice may result in skipped stitches.

How to Skip on 100 Series EnVision Cards

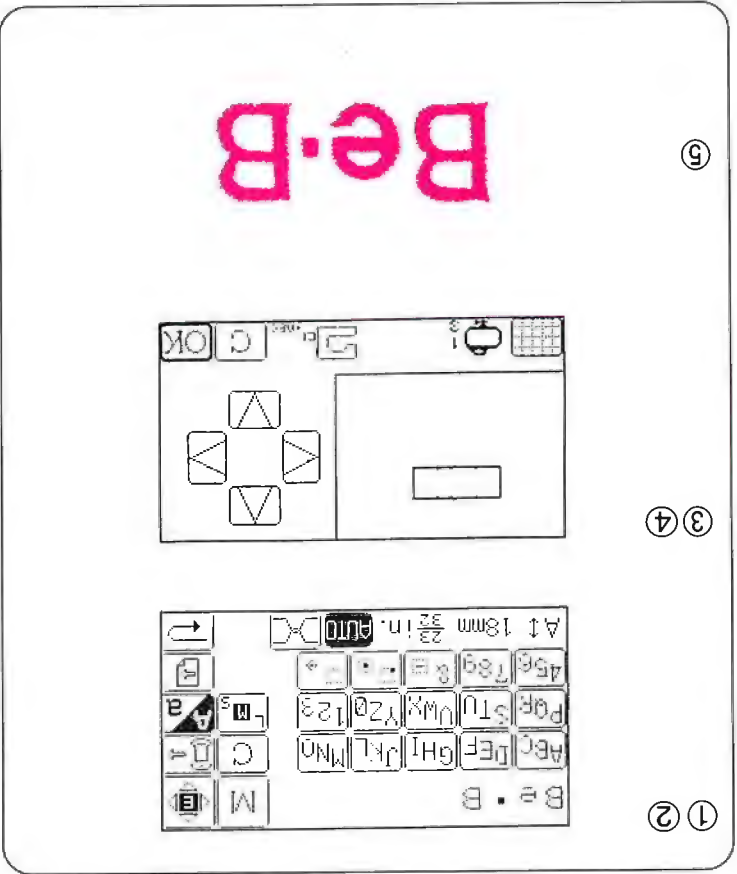
(You may sew a design section out of sequence.)






Example: Card 102

1. Select design .
 2. You would like to sew only section 3. Press the key indicating section . The machine has skipped to section 3.
 3. Sew sample.
- Press  key.
- Press  key.
- Turn off machine.

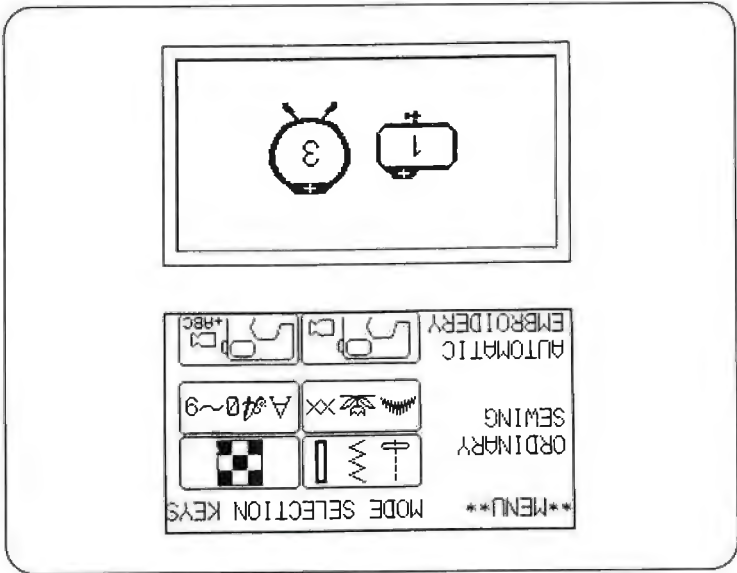


1. Prior to programming, delete the previously programmed letters by pressing the clear key. For a long program, it is advisable to write down the programming procedure in order to avoid an error.
- * An electronic alarm will sound when the memory is full.
2. If you accidentally select an incorrect design/letter/number, press the clear key. The incorrect design will be cleared.
3. If an incorrect operation is performed in programming, an electronic alarm will sound.
4. In the following cases, the entire program is cleared:
 - When the power switch is turned off.
 - If you have been sewing programmed letters/numbers and then stop the machine, if you then press the clear key, go back key or any design key.



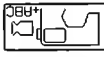
1. Memorize "Be-B" in block style.
 2. Press the edit key .
 3. Shift the design to the appropriate position by pressing the  keys.
 4. Press  .
 5. Sew sample.
- * Press the  key after sewing is complete.
- * If you make a mistake or want to start over, use the  key to clear the screen.

Combination of Designs and Border Designs



It is possible to combine designs contained on one or more cards.

Insert Envision Card 101.

Press  key.

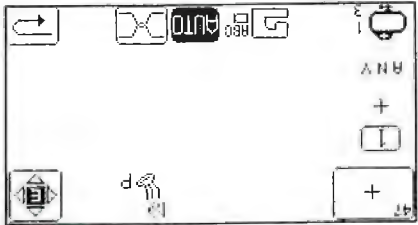
The appropriate hoop(s) is/are indicated on the screen for a few seconds and then the design selection screen appears.

Edit Design Mode

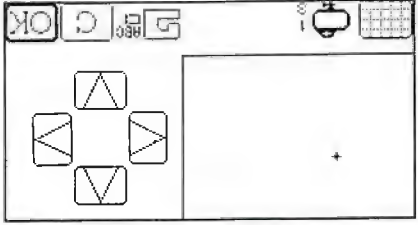
SECTION IX

- ### How to Center a Design
1. Mark the center on the fabric.
 2. Set the fabric in the embroidery hoop and attach the hoop to the carriage.
 3. Insert EnVision Card 102. Turn on the machine and select design 47.

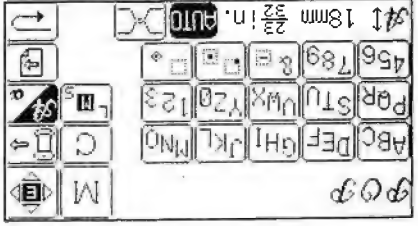
6. Memorize the border designs and .
7. Press the key.
8. Shift the design to the appropriate position to combine with the design previously sewn by pressing the key.
9. Press .
10. Sew sample.



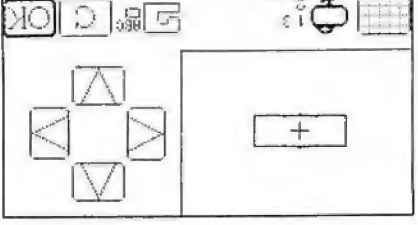
④




⑤ ⑥









⑦ ⑧





⑨




⑩

4. Press the  key.
5. Use the  keys to move the carriage until the "+" mark on the fabric is directly under the needle.
6. Press  key. Press **START/stop** key. The machine will sew one stitch and automatically stop.
7. Turn off the power switch and insert Envision Card 101.
8. Memorize the word "POP" in script style and press the  key.
9. Use the  keys to move the rectangle on the screen so that the "+" is exactly in the center. Press the  key.
10. Press the **START/stop** key.




Thread Breaks While Embroidering

The thread sensor will automatically stop the machine if the needle thread breaks while embroidering. Use the  or  key before rethreading.

Beginning Key

If you have started the machine and, in the middle of sewing a word (or some other design) you want to reposition the hoop/fabric and sew again from the beginning of the word (design), press the  key.

Frame Position Key

Press the  key and the display will change to show  and  keys.

Frame Return Key

This key is used to reposition the hoop after the thread breaks. By pressing this key, you can move the hoop backward to the point where the thread broke.


- The hoop is moved backward 10 stitches each time the key is pressed.

Frame Advance Key


Pressing this key moves the hoop forward without sewing. The key is used for correction when the hoop is moved backwards too far.

- The hoop is moved forward 10 stitches each time the key is pressed.

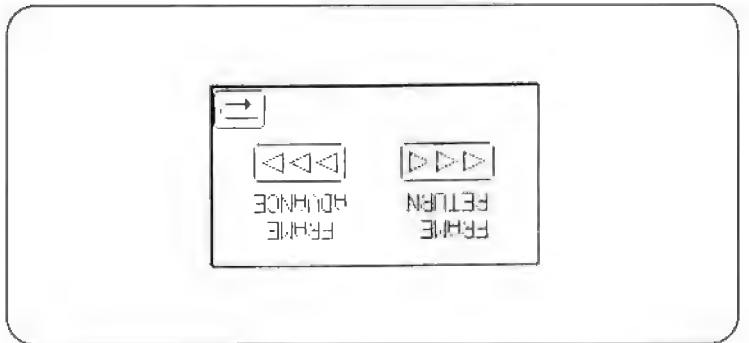
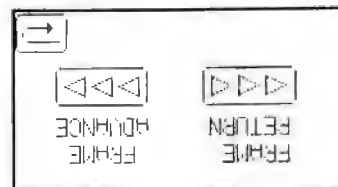
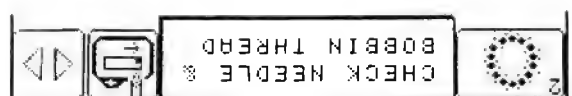
* Press the  key after using the  or  key.

NOTE: Before pressing  keys, make sure the needle is at its highest position.

Rethread the machine.

Press the  key. You will probably need to press the key more than once to align the needle position to sew before the thread breaks.

Lower presser foot. Press **START/stop** key.



SECTION X

Alternative Envision Cards

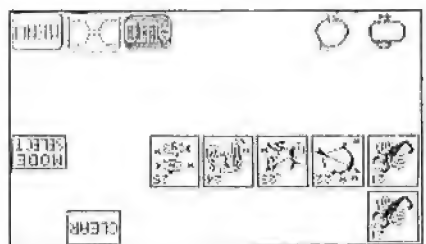
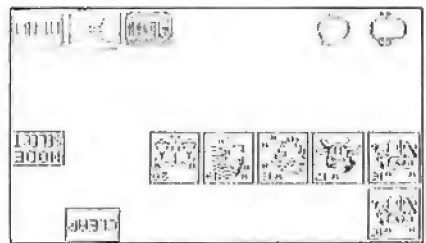
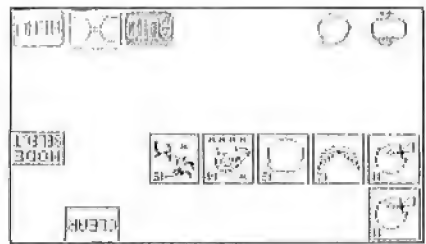
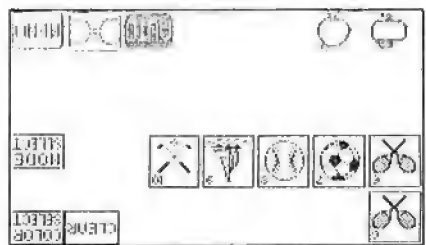
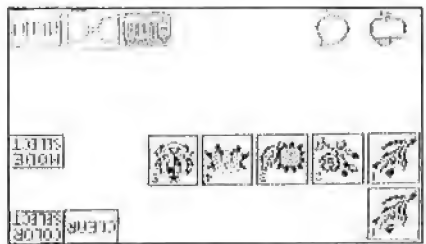
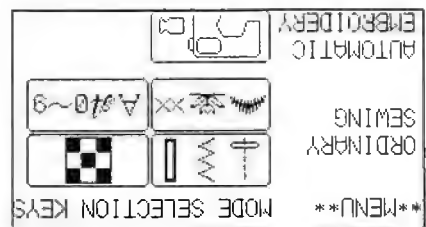
*Envision Cards Available For the Elina 9006 Model
May Be Used in the CE-20*

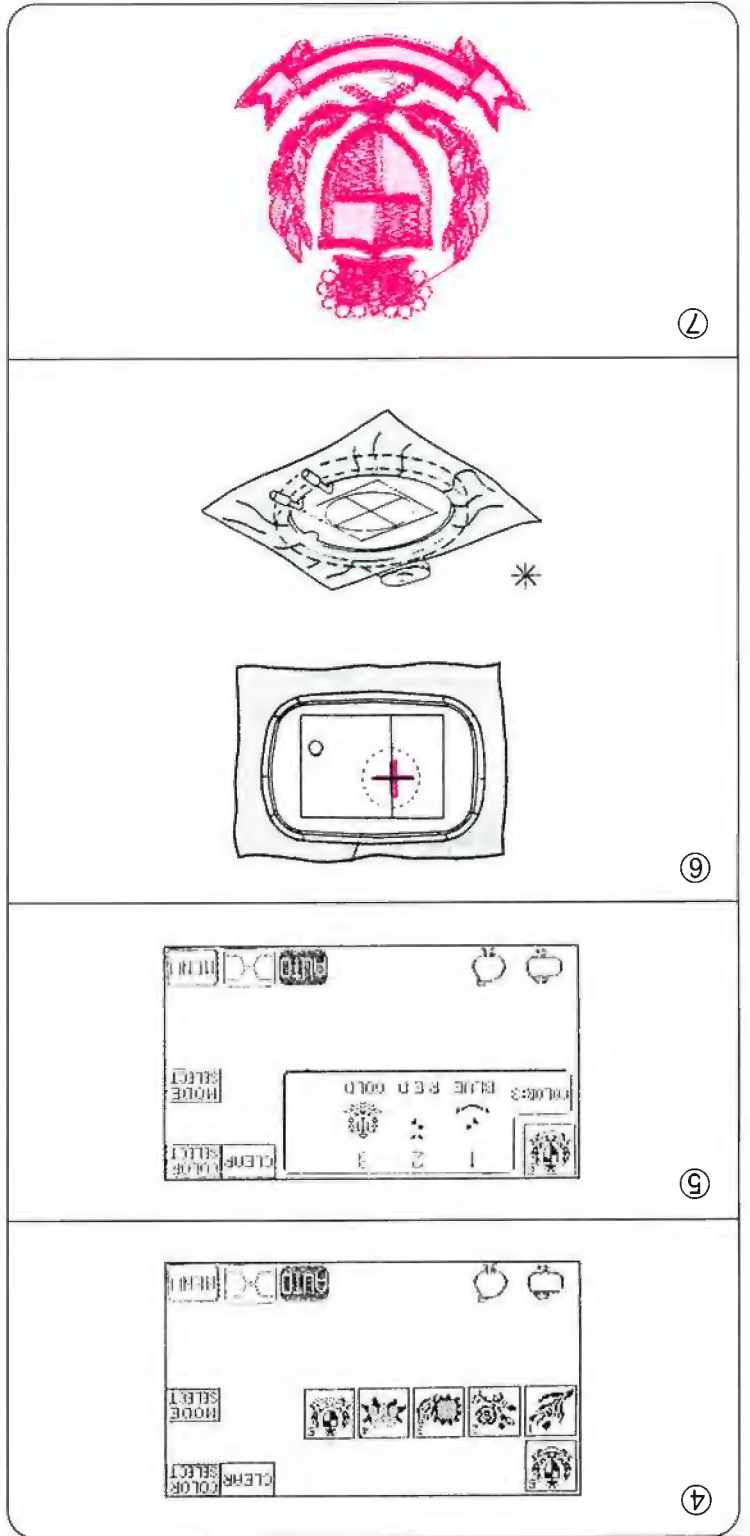
Example: Envision Card 2


1. Insert Envision Card 2.

2. Press  key.

3. Press  key to alternate between five display screens.





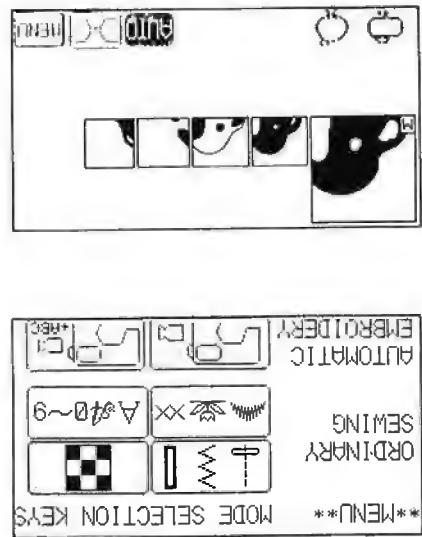
4. Select design  by pressing the display screen.
5. Press the color select key if it is shown as an option. Screen will show sewing sequence and suggested thread colors. (Some designs are either one or two colors and the color select key will not be shown.)
* If you do not press the color select key, the design will be sewn without the machine automatically stopping for thread changes.
6. Mark the fabric with reference lines, matching them with those on the template. Set the fabric in the embroidery hoop and attach the hoop to the carriage.
* We recommend using the round embroidery hoop (optional).
7. Press **START/stop** key. Machine will sew section 1 and automatically stop.
Change thread color and sew next section. Continue using same method until design is completed.
NOTE: Skipping is not an option with these cards.

An Optional Scanner is Available for the Elna CE 20

1. Insert the scanner EnVision Card.

2. Press  key.

3. Sew sample using same method as normal embroidery.



SECTION XI

Care of Your Machine

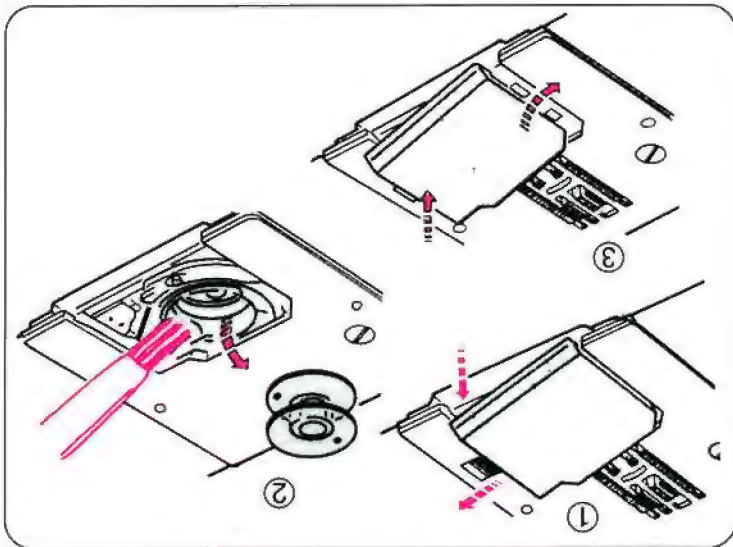
The Elna CE 20 Envision has been meticulously designed and manufactured to give you a lifetime of sewing pleasure. Do not store the machine in a high humidity area, near a heat radiator or in direct sunlight. The machine is self-lubricating, however, the area around the bobbin and hook must be cleaned each time the machine has had extensive use. Clean the outside of the machine with a soft cloth and pure soap.

Cleaning the Bobbin Area

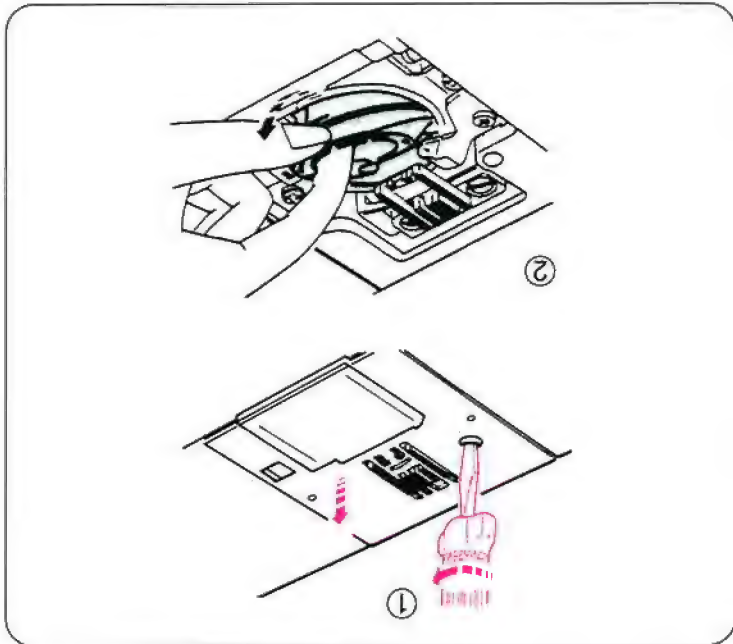
Loose threads and dust may cause puckered stitches and thread breakage during stitching. Check for lint buildup after each garment is completed.

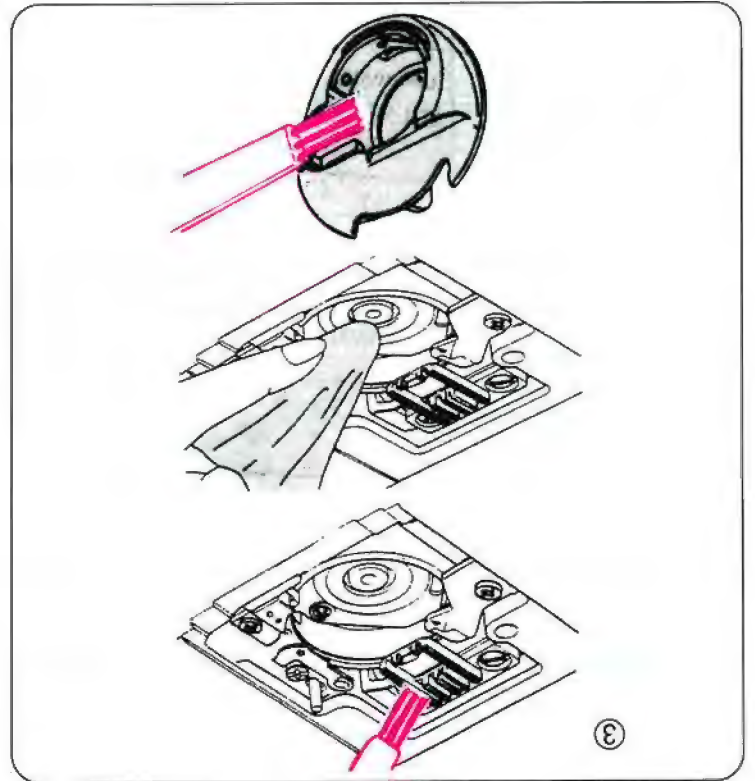
Press the up/down needle key until the needle is raised. Unplug the machine before cleaning.

- ① Remove the bobbin cover plate by sliding the bobbin cover plate release button to the right.
- ② Take out the bobbin, brush out dust and lint. (You may also use a small vacuum cleaner.)
- ③ Insert the bobbin and attach the bobbin cover plate.



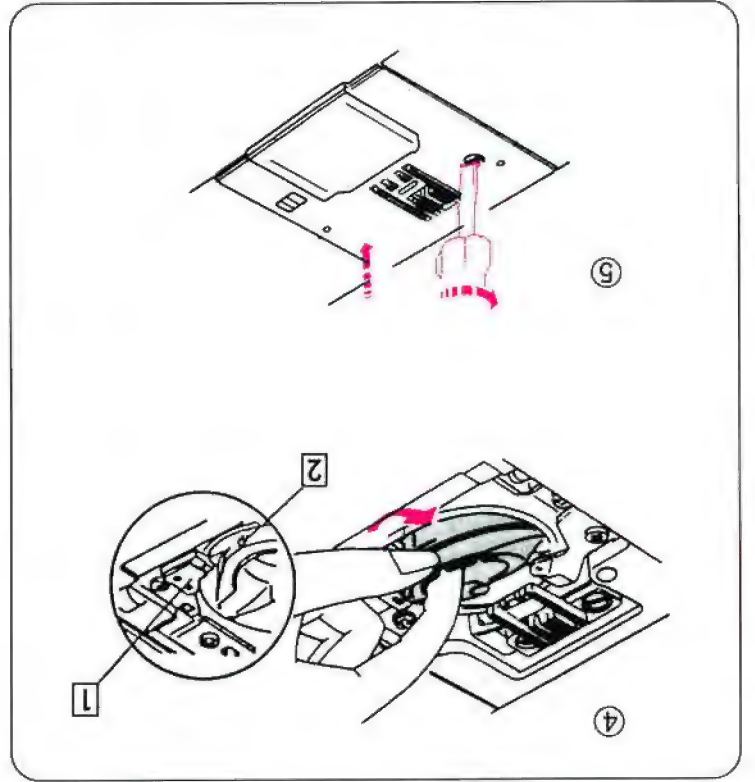
- ① Remove the presser foot, bobbin cover plate, needle and bobbin. Remove the screw on the left side of the needle plate using the screwdriver supplied with the machine.
- ② Remove the needle plate. Lift up and remove the bobbin case.





Cleaning the Hook Area and Feed Dog (cont'd)

③ Clean the feed dog and hook area with the lint brush. Wipe out gently with soft, dry cloth. (You may also use a vacuum cleaner.)



Replacing the Bobbin Case

④ Insert the bobbin case so that the knob fits next to the stopper in the hook area.

② Knob

① Stopper

⑤ Replace the needle plate, inserting the two needle plate guide pins into the holes in the needle plate. Replace the screw.

After cleaning, be sure to replace the needle, presser foot and bobbin.

Condition	Type of Sewing	Cause	Reference
The machine is noisy.	All	1. Threads have been caught in the hook area. 2. The feed dog is packed with lint.	See pages 95-96.
The needle thread breaks.	All All All All All Ordinary Embroidery	1. The needle thread is not threaded properly. 2. The needle thread tension is too tight. 3. The needle is bent or blunt. 4. The needle is incorrectly inserted. 5. The thread is too heavy for the needle. 6. The needle thread and the bobbin thread are not placed back under the presser foot when starting to sew. 7. The needle thread is not in the thread holder when beginning embroidery sewing.	See pages 17-18. See pages 24-25. See page 8. See page 8. See pages 11, 74. See page 19. See page 75.
The bobbin thread breaks.	All All All	1. The bobbin thread is not threaded properly in the bobbin case. 2. Lint has collected in the bobbin case. 3. The bobbin is damaged and doesn't turn smoothly.	See page 16. See pages 95-96. Use an undamaged bobbin.
The needle breaks.	All All All All All Ordinary	1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle clamp screw is loose. 4. The needle thread tension is too tight. 5. The fabric and threads are not pulled to the back when sewing is finished. 6. The needle is too fine for the fabric being sewn.	See page 8. See page 8. See page 8. See pages 24-25. See page 22. See page 11.
Computer display screen is not clear.	All	1. The lighting of the computer display screen is not adjusted properly.	See page 7.
The embroidery keys don't work.	Embroidery	1. The EnVision Card is not inserted properly.	See page 77.
Keys don't work.	Embroidery	1. The needle is in a lowered position.	See page 91.
Skipped stitches.	All All All All All All Ordinary Embroidery Embroidery	1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle and/or threads are not suitable for the fabric being sewn. 4. A stretch needle is not being used for sewing stretch, very fine fabrics and synthetics. 5. The needle thread is not threaded properly. 6. The wrong needle is being used. 7. The foot pressure dial is not adjusted correctly. 8. The embroidery hoop is not attached properly. 9. The fabric is not pulled taut in the embroidery hoop. 10. You are trying to sew the design twice for heavy thread coverage. 11. Use interfacing for fine or stretch fabrics.	See page 8. See page 8. See pages 11, 74. See page 11. See pages 17-18. See page 11. See page 6. See page 76. See page 76. See page 86. See pages 35, 39, 74.
Slipping fabric.	Ordinary	1. The foot pressure dial is not adjusted correctly. 2. The correct presser foot is not being used.	See page 6. See computer display.

Condition	Type of Sewing	Cause	Reference
Seam puckering.	All All Ordinary Ordinary Embroidery All	1. The needle thread tension is too tight. 2. The needle thread or bobbin thread is not threaded properly. 3. The needle is too large for the fabric being sewn. 4. The stitch length is too long for the fabric. 5. The foot pressure dial is not adjusted correctly. (When sewing extremely lightweight fabrics, place stabilizer underneath the fabric.) 6. The fabric is not pulled taut in the embroidery hoop. 7. Use interfacing for fine or stretch fabrics.	See pages 24-25. See pages 16-18. See page 11. Decrease stitch length. See page 6. See page 76. See pages 35, 39, 74.
The fabric is not feeding smoothly.	Ordinary Ordinary Ordinary Ordinary Ordinary Ordinary	1. The feed dog is packed with lint. 2. The foot pressure dial is not adjusted correctly. 3. The stitches are too close. 4. The fabric is not fed when sewing begins. 5. The feed dog is lowered. 6. The correct presser foot is not used.	See pages 95-96. See page 6. Increase stitch length. See page 7. See page 9. See computer display.
The machine doesn't run.	All All All Ordinary Embroidery All	1. The machine is not plugged in. 2. A thread is caught in the hook area. 3. The control circuit is not working correctly. 4. The start/stop key is used for ordinary sewing with foot control plugged in. 5. The foot control cannot be used for embroidery sewing. 6. The needle is not threaded.	See page 12. See pages 95-96. Turn machine off and on again. See page 12. See page 74. See pages 18, 91.
Strange sound occurs when machine switched on.	All All All	1. Something is caught between carriage and machine. 2. The carriage is touching something around the machine. 3. The machine is turned off just as the carriage touches the feed dog lever.	Remove the object. See pages 26, 74. Turn machine off and on again.
Stitches are distorted.	All All Ordinary Ordinary Embroidery Embroidery Embroidery Embroidery All	1. The correct presser foot is not being used. 2. The needle thread tension is too tight. 3. The stitch length is not suitable for the fabric being sewn. 4. The fine adjustment dial is not set properly. 5. The embroidery hoop is not attached properly. 6. The carriage has bumped into something near the machine. 7. The fabric is not pulled taut in the embroidery hoop. 8. The end of the fabric is caught or being pulled when sewing embroidery. 9. The needle thread on wrong side of fabric is not cut correctly. 10. Use interfacing for fine or stretch fabrics.	See computer display. See pages 24-25. See page 5. See pages 5, 44, 60, 69. See page 76. See page 74. See page 76. Stop machine and free end of fabric. Cut extra needle thread on wrong side of fabric. See pages 35, 39, 74.
The automatic buttonhole stitches are not balanced.	Ordinary Ordinary Ordinary Ordinary	1. The stitch length is not suitable for the fabric being sewn. 2. Interfacing is not being used with fabrics. 3. There is a gap between the slider and spring holder. 4. The fine adjustment dial is not set properly.	See page 42. See page 39. See page 42. See page 44.
Computer display keys don't work.	All All All All	1. The bobbin winder spindle is in the winding position. 2. The letter size and amount of characters are beyond the capacity of memory. 3. The control circuit is not working correctly. 4. Sewing modes have not been properly selected.	See page 15. See pages 69, 79. Turn machine off and on again. See pages 13, 77, 78.

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